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REPORT
ON
THE BRITISH COTTON INDUSTRY

An investigation of the present structure of the
industry and proposals for reorganisation
with special reference to competitive
efficiency in world markets.

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PART I.—INTRODUCTION

(1) Introductory

Owing to the complexity of the cotton industry and the advanced state of decay into which it has been allowed to sink, it is impossible to discuss future action without a careful analysis both of the causes of the trouble and of the facts of the situation as it is. This analysis, together, as far as possible, with indications of specific changes which are required, is given in the second part of this report.

Meanwhile it is sufficient to point out that Lancashire has failed to move forward in structure, organisation, and technique; that the war and the growth of economic nationalism which followed, the contraction of world markets due to the slump, to the relative decline of agricultural commodity prices and to the growth of rayon and other competitive materials, all inflicted severe blows which would have shaken an industry better organised to withstand them; and that a host of subsidiary causes, some of them common to all countries producing cotton goods, some of them specific troubles of this country, have contributed to the present desperate position.

A survey of the industry shows that there is a labour force of nearly 570,000 insured workers suffering from a rate of unemployment ranging in the post-war depression between 11 and 50 per cent. Net output having declined, employers and employed have systematically worked short time and have thus drawn an indirect subsidy from other industries and from the State by means of the Unemployment Fund. Collective bargaining has met with severe difficulties, of which the pressure for wage reductions and the "more looms per weaver" dispute were characteristic. There is a huge redundancy problem, embracing perhaps 14 million spindles and 150,000 looms, which calls for a planned employment policy as the only means of mitigating widespread suffering. Refinancing in the post-war boom has left an evil legacy: the practices of local finance, of the issue of part-paid shares and of calling up unpaid capital has intensified the problem, and to a large extent control has passed into the hands of the banks. Necessary amalgamation has been hampered in many cases by the technical weakness of financially sound mills, and vice versa. Obsolete plant and uneconomic size of mills are widespread handicaps to efficiency. There is a marked dependence in the manufacture of low-count yarns on American cotton, in spite of the need for increased use of Indian cotton. The industry is rent by acute sectionalism and by lack of organised contact with its markets, many of which are being torn from it by the modern marketing methods of other countries—notably Japan—aided by the advantage of a far lower level of wages. Anyone who wishes has been able to enter the industry, and this has prevented effective action by the larger units. The calamitous social and economic effects of this situation call for immediate action—for a new outlook, new organisation, and new methods.

(2) Reorganisation

Previous schemes

(i) Originality is no criterion of merit as far as schemes for the reorganisation of the cotton industry are concerned. Numerous sound ideas for partial reforms have been put forward since the war, but have broken down either through (a) lack of agreement in the industry and internal, often personal, dissensions, or (b) method and mechanism having been imperfectly worked out. Examples are the Joint Committee's Redundancy Scheme, the Cotton Yarn Association and the Eastern Textiles Association, and the Federation of Master Cotton Spinners' scheme, while completer schemes for the whole industry have been worked out by the Bankers' Industrial Development Co., the Trades Union Congress, and a number of other people.

Personnel

(ii) In this connection it cannot be overemphasised that an apparently dying and nearly bankrupt industry does not attract good and young men. There is a very serious dearth of active and originally-minded personnel, and those who are in it have been embittered by the constant struggle with their surroundings. When any question crops up on which the industry has to express a more or less united opinion—e.g. Japanese competition, tariff or quota action by other countries such as France or Germany, redundancy, more looms per weaver, etc.—it is always the same set of men who have to represent the opinion, besides running their own business. So seriously do we regard this trouble that we think it would be better to import good, and youngish, men from other industries or activities, even at the disadvantage of their not knowing the inside of the admittedly complicated and specialised cotton industry. Reorganisation cannot be carried out without the men to do it. The central organisations, with their skeleton staffs and limited budgets, as for instance the Cotton Spinners' and Manufacturers' Association, the Federation of Master Cotton Spinners' Associations, the Joint Committee of Cotton Trade Organisations, etc., must be fed with more money even by an impoverished industry in order to enable them to get men who can give their attention to problems such as those outlined, backed up on the committee principle by leading spinners, manufacturers, finishers and merchants. The steel industry employs chartered accountants to run its trade associations and gives them a good deal of power. This may not be the right way for the cotton industry but they must get in responsible personnel.

Relation between the Ideal and the Possible

(iii) Owing to the fact that the industry has done nothing new since it refinanced itself in 1919, the type of reforms needed is fundamental and far-reaching. Yet it is no use putting down an ideal scheme and expecting it to be eagerly taken up. Therein lies the first big difficulty: there must be an ideal objective, but it is doubtful if anything but a revolution would bring it about, and a revolution would do nothing but finally kill Lancashire, as the cotton industry cannot wait for the building that follows the destroying. It must be a case of rebuilding with business as usual. Herein lies the importance of finding some way of starting, even if a modest one, if it gives a broadening vista—e.g. the minimum price schemes for the spinning section, which, taken alone without an idea of what can be built out of them, or seen only from the economic standpoint, are bad but psychologically could be of enormous use. Nowhere is planning and co-ordination more needed than in the cotton industry, yet any simple and direct "Plan" to be implemented very quickly to rehabilitate the industry is quite impossible and N.R.A. methods cannot be used.

(3) Points of Attack

Discussions on the reorganisation of the cotton industry always—though not unnaturally—tend to wander interminably round the problem of where to begin. It is essential that there should be a concerted attack from several directions aimed at converging on the ideal objective already referred to, with reinforcements suitably provided for, since it is inevitable that some of these attacks will fail.

There are, however, four main points of attack: (a) undercutting in the spinning section, (b) redundancy (mainly in the spinning section), (c) marketing, and (d) wages and conditions of work.

Price-Cutting and Redundancy

(a) and (b) The two problems of price-cutting and redundancy in the spinning section, which are closely interlocked, can best be dealt with together. The spinning section is the root of the whole cotton industry and its health and prosperity are essential to the rest. The Egyptian sub-section is to a considerable extent amalgamated and although it may still have its troubles ahead, as Japan attempts to increase her output of fine cotton goods, it should have learned much from the experience of the American sub-section. It is this sub-section which has suffered most severely during the last few years.

Price Agreements in the Spinning Section

This position was considerably improved during the second half of 1933 by the introduction, under the leadership of the Lancashire Cotton Corporation, of a series of voluntary price agreements to which substantially the whole American section organised by different counts and types of yarn has adhered. Prices have been raised to a point which covers cost and a small amount for depreciation, but due emphasis has been given to the vital points that no attempt must be made to raise them beyond this, and that any further profits must arise from increased output and employment. This temporary agreement after years of reckless price-cutting can only be regarded, however, as a breathing space from which to start on the work of consolidation. Unless this work is started quickly, the agreements will inevitably be broken, as happened at the end of May 1934 in the case of coarse American counts, and this is in any case likely to happen either if any further contraction in demand takes place or more probably, perhaps, in the seasonal expansion in the first half of the year. There is therefore no time to be lost.

Relation of Capacity to Production

One of the principal problems which the American sub-section is up against is redundancy. Present production is approximately equivalent to full-time work for 16 million spindles against a total of about 30 million. Allowing for a necessary reserve and about 4 million which can change from American to Egyptian yarn (some of which are, however, probably doing so already), at least 7 million are definitely redundant, and some authorities consider that from 10 to 14 million is nearer the mark.

The Joint Committee of Cotton Trade Organisations formulated a scheme for a levy for the purpose of acquiring redundant spindles for scrapping, but it was unfortunately turned down mainly because at the time it was practically impossible to get the industry as a whole to agree on anything. It should be noted also, however, that the scheme would have involved quite a substantial annual charge on the mills which many of them would have found the greatest difficulty in meeting, so that these could hardly have been expected to support the scheme. It is, in fact, a fundamental necessity that in organising any redundancy scheme, the compensation to units closed down should be paid out of the future profits of those remaining in operation.

The problem of redundancy, however, remains; and the attitude of the industry towards resuscitation of schemes which have been put up and turned down before is such that it might be preferable for tactical reasons to try the alternative method of elimination of surplus capacity through amalgamation. This has in fact been done—unintentionally as far as the original plans go—in the case of the Lancashire Cotton Corporation which originally had about 9.3 million spindles, since reduced to about 6.25 million of which 4.0 million are running. A heavy capital loss is obviously involved but this is partly at least borne by the banks and is a retribution for the original policy pursued by some of them in pushing their obsolete and uneconomic mills into the combine. In formulating the financial measures involved in the amalgamation schemes outlined on page 10 it should be possible to evolve a method for minimising watering of capital and for bringing in the mills into the new combine on a substantially true valuation.

Amalgamation in the Spinning Section

The ultimate aims of amalgamation in the spinning section are discussed below. As regards immediate steps, there are already certain large groups of mills which might be used as nuclei; but this is probably not enough and a Producers' Association for the spinning section should be set up with the support of the Government and the Banks for the primary purpose of arranging amalgamations. The State of Trade Committee of the Master Spinners' Federation has been considering these questions for some time, and it is expected that their report will embody proposals along these lines. It should be noted that the Government have on at least two occasions (at the time of the Joint Committee redundancy scheme and on the occasion of a deputation to the Board of Trade early in 1934) indicated that they would consider favourably

giving their support to proposals supported by the majority of the industry, and it is vital that such a Producers' Association should have power to implement the decisions of two-thirds of the trade

New Capital

An essential part of the scheme must be the provision of new capital to enable plant to be brought up to date, which has in effect not been attempted since the war, and also to instal new plant such as ring spindles and machines for dealing with Indian cotton, and to promote the change over from American to fine yarns already emphasised as essential. The agreements previously referred to which were made partly with the object of enabling depreciation to be earned have done something to indicate to the industry the way back to a sound financial footing without which it will be impossible to obtain the necessary finance. It is believed that the question of Government guarantees of loans, which for various reasons would probably be undesirable, will not arise and that with the formulation of a scheme on the lines proposed, the necessary finance would be forthcoming from the City.

Marketing

(c) The marketing of yarn, for reasons discussed below, does not present the same difficulties as the marketing of piece goods, but provision would have to be made for a Yarn Export Marketing Corporation on the lines of the proposed Marketing Corporation for piece goods (see below). The two organisations would work in collaboration and though the chief markets would not be the same in both cases, joint overseas representation would be arranged where possible.

Various proposals have been made in the past for improvements in marketing of piece goods, and schemes such as the Eastern Textiles Association have been tried out. The failure of this idea which had, *prima facie*, much to commend it, had more to do with the vagaries of the price of silver than the unsoundness of the scheme, but it has unfortunately done a good deal to discredit co-operative marketing in Lancashire, which will sometimes try something once but never for very long and always with the anticipation of a certain grim pleasure at its failure.

Merchants and the Growth of Direct Sales

The main difficulty in pursuing this line of action is that merchants have not, hitherto, been willing to come in, while manufacturers are unwilling to attempt to sell direct when they know that they will thereby antagonise the merchants on whom they are dependent. This difficulty is, however, disappearing with the growth in direct sales on the part of many large manufacturers, who may, however, still be forced to adopt subterfuges to do so, and also on the part of the big finishing combines. Lancashire will therefore shortly be faced with a *fait accompli* which under the circumstances will be the best way of introducing the new key to the future prosperity of the industry—the Marketing Corporation. The process could, however, be speeded up by getting together the main interests supporting the idea and formulating a scheme for doing jointly what is at present being done independently, bringing in as many of the larger merchants who have the foresight to realise that they will gain more by coming in on reasonable terms than by trying to maintain their rapidly waning individual businesses. It has been objected that it will never be possible to obtain the co-operation of merchants in such a scheme, but while their experience and connections would be valuable, they would certainly not be indispensable, and as soon as the Marketing Corporation began to show practical success as direct marketing has done, they would probably change their attitude. There are already in other industries a growing number of examples where joint marketing, particularly in the export field, is being successfully carried out, and the experience of these would be available in formulating the necessary technique, a matter of which the difficulty should not, however, be under-estimated.

Wages and Conditions of Work

(d) Finally, the question of wages and conditions of work has been one of the danger spots of the industry for too many years. The other reorganisations which have

been proposed will give an immense impetus towards the improvement of employer-employed relations and should do much, by giving a constructive purpose to the whole industry, to enable the mutual hostility and dogged opposition to be forgotten. There will remain, however, the pressing problem of the enforcement of agreements throughout the industry, and some action along the lines proposed on page 17 will be necessary.

Breaches of Agreements

Whether the industry finally decides that it favours direct legislation, as at present appears probable, or a Trade Board or a Control Board along the lines proposed by the T.U.C., does not much matter. But it will be quite impossible either to operate the present agreements, or, what is more vital, to reach new ones, unless provision is made for preventing breaches by the minority of what the majority have agreed to. It is emphasised below that this does not mean that the minorities should be ridden rough-shod over because in many cases there is a real basis of difference of conditions which must be provided for, underlying their inability rather than refusal to carry out the terms of the majority agreement. There are, however, all too many examples of cases where spinners and manufacturers have not paid much attention to their obligations under agreements when the forces against their doing so have been strong or when they have suspected the defection of their neighbours.

(4) The Ideal Set-up

The ultimate goal which has been referred to above must embody the following general principles:

The Marketing Corporation

(1) Marketing—particularly export marketing—cannot be left any longer to individual merchant firms. There must be a Marketing Corporation, or a group of closely linked organisations, for the whole industry. Lancashire cannot make unless she can sell and the hiatus between producer and overseas consumer is one of the basic reasons why, even granted Japan's cheaper wage costs, the decline of Lancashire has been as rapid as it has. This Corporation must be run as an autonomous profit-making concern, ultimately, probably, with a *de facto* monopoly for Lancashire goods, though this will have to come about through the practical realisation of the economies which it can achieve through bulk purchase and distribution rather than in any other way. Although individual merchants may continue to operate as they do at present, the Marketing Corporation will sell exclusively British cotton goods. It will allocate orders probably on a basis of quotation against specification, though the industry may prefer to evolve a system of quotas for different classes of goods. It will maintain agents or representatives in all the main markets, part of whose duty it will be to keep the Marketing Corporation, and through it, the manufacturers, in closest contact with current conditions, competitive prices, styles, etc., and future trends. These contacts with the consumer will become the nerves of the whole industry and the Marketing Corporation itself the motor. The agents or representatives themselves will be responsible for direct sales to the individual consumers, stores, native bazaars and village merchants in their own markets. In native markets they will, as far as possible, employ travelling salesmen with local depots and district offices in the way now perfected by the chemical and oil companies in the East, and being rapidly copied by makers of cars, cameras, mustard and blue, radio sets and other commodities. They will, moreover, try to attract into the work of overseas sales development pioneers who are bold in action and original in thought and can seek out new markets and open them up. While it has been found, for instance in the steel industry, that it is easier to obtain agreement on unified marketing in overseas markets first, and while the Marketing Corporation would probably start in this way, it would eventually also extend its activities to the home market.

Planned Production Policy

(2) Behind this sales organisation, which Lancashire at present so sadly lacks, there must be a producing industry brought to the highest pitch of technical efficiency, and with a planned production policy substituted for the present chaotic internal competition. There must be three basic points to this policy:

- (i) A re-separation into the fine and American sections and an end to the uncontrolled encroachment of mills spinning coarser counts and sheds weaving coarser cloths into the fine section.
- (ii) As an essential counterpart to this, a powerful stimulus to the production of fine and specialty goods, rayon mixtures and new styles of fabrics, in order to offset at least part of the inevitable decline in the low quality goods. This basic point of policy must be linked up (a) with an intensive research programme on new fabrics, finishes, etc ; (b) with Japanese competition, as discussed below, by always keeping ahead of Japan in the production of quality goods and better class designs on cheaper goods, prints, etc , instead of accepting the reverse as an inevitable feature of the cotton trade when in every other industry Japan is securing herself a name of nothing better than a cheap copyist
- (iii) A rebuilding of a sound though necessarily contracted trade in the bulk lines as an essential foundation for carrying trade in the more highly specialised goods

Structure

(3) To carry out these objects the structure of the industry will have to be radically overhauled. There is no reason to assume that the same type of structure will be applicable both to the spinning and weaving sections. Experience has shown that the most efficient spinning mills concentrate on a limited range of counts, and this standardisation on which the industry was built up was only destroyed by the post-war depression compelling mills to produce a wider range in order to keep going. The further widening of the range which has proceeded ever since has undoubtedly been a factor which has militated against reduction in costs. On the other hand, the variety of its products and the individuality of its managers and technicians has always been a fundamental characteristic of the weaving section, and though this does not say that much more standardisation could not be advantageously introduced in manufacturing, there is this basic difference between the two sections

The Spinning Section

(i) Probably the ideal organisation of the spinning section will be in large amalgamations. In the case of the Egyptian sub-section this has already been achieved to quite a considerable extent, though by no means so far as is sometimes believed, since the three main combines only control about 53 per cent of the total spindles on Egyptian, and there is therefore still some way to go. Whether Fine Cotton Spinners will ever amalgamate with Combined Egyptian Mills will depend as much as anything on whether a satisfactory mechanism is ever evolved for enabling the Dorman Long/South Durham merger to be carried through. Some way of making sound technique and strong finance good bedfellows will have to be found

It is significant, though, that while the degree of amalgamation achieved in the Egyptian sub-section is looked on even in present day Lancashire as a cause for congratulation, amalgamation in the American section is still anathema within a twenty-mile radius of Oldham Chamber of Commerce. This is largely owing to the past history of the Lancashire Cotton Corporation, and the banks, however much unjust abuse they may have to bear, are really to blame for this. Certain banks unloaded their obsolete and uneconomic mills on to this combine which was handicapped from the start, and it has taken the best energy and brains in Lancashire to get over this handicap. But, however much writing off has to be done in the process, it will be got over, as the latest report shows, and Lancashire will at the same time have to get over her prejudice against large-scale organisation when such organisation has proved that it has learned the science of administrative control. Parallel amalgamations in other industries have found decentralisation the way to this, and the L.C.C. is following suit. The objections to amalgamation are in fact now certainly lessened, owing to the knowledge that the manner of conducting the affairs of the L.C.C. does not eliminate but encourage individuality and initiative at the producing end of the business.

Whether there will be, in the ideal, one, two, three or more combines in the

American section, only the ultimate effective capacity to which this section is reduced, and the economics of large-scale administration can say, but amalgamation on this sort of scale there must be. As has been indicated above in dealing with practical steps, the groups round which such amalgamations can be built up exist already

It is a vital assumption of the ideal set-up that capacity shall have been brought into line with possible demand and all surplus plant eliminated, so that redundancy schemes as such do not properly come up for discussion here. It may be confirmed, however, that the history of attempts to deal with redundancy being what it is, the best way to tackle the problem is probably through amalgamation.

The Weaving Section

(ii) In the weaving section, however, while it may be necessary to increase the size of individual sheds, which are often below that of their most efficient counterparts abroad; and while it may be advisable to form district groupings or even small amalgamations of mills producing similar products, the main way of introducing order will probably be through a Producers' Association comprising the entire manufacturing section. Whether the Marketing Corporation would place orders with this Association which would then distribute them to individual sheds on a quota basis, or whether the vital stimulus towards reduction in costs together with the necessary protection against senseless undercutting could best be achieved by putting each manufacturer on a registered list for each of his several products and then letting him quote for these products against specification by the Marketing Corporation, must be left to be worked out later.

It is probable that the use of the Manchester Royal Exchange for yarn—at any rate as a commodity exchange in the economic sense—would of necessity stop with the amalgamation of the spinning section. The spinning combines would sell direct, and as the yarn agent will no longer have a useful function to fulfil, he will drop out, as indeed is already happening. Whether, however, the manufacturers choose to buy individually from the spinners' sales departments or to organise central purchasing through their Producers' Association is another point which will have to be worked out later, and will depend among other things on the policy pursued by the spinners. Ideally it is doubtful whether central purchasing should be necessary either from the point of view of the weaving section or of the industry as a whole, as the spinners' sales departments would bulk the yarn orders of manufacturers and allocate them back to mills inside the amalgamation in such a way as to ensure full-time working of all mills operated. It should be noted in this connection, however, that manufacturers sometimes stipulate that yarn should be the product of a particular mill whose quality is known, and provision would have to be made for such preferences at any rate in the initial stages until standardisation has proceeded further.

Vertical Concerns

(iii) Finally, there remains the problem of the vertical concern. Many of these are among the oldest companies in the industry and have developed perhaps more through the desire of the manufacturer to obtain his own yarn supplies than through the desire of the spinner to acquire looms. In recent years, however, the manufacturer owning spindles could often have bought his yarn cheaper than he could have made it. The number of looms "attached" to spindles is relatively small; but vertical organisation as a principle has attracted a good deal of support because on the whole vertically organised concerns have fared better than the general run of spinners or manufacturers. The underlying reason for this, however, has often been overlooked. It is because the vertical concerns have usually developed their own marketing, and this has been the key to their success.

The basic objection to vertical organisation has already been indicated. Spinning is a standardised operation, or should be; weaving is an individualist one. In the ideal, a mill of 100,000 or 150,000 spindles, say, would never spin more than about half a dozen counts. A shed of 1,000 looms would, even when maximum bulking of orders and standardisation had been provided for, weave a fairly wide variety of cloths, and moreover, while it might be occupied for a week or more on a limited

number of long runs requiring certain types of yarn, it might next get orders for slightly different types of cloth requiring other yarns. This tendency would be accentuated with the necessary trend towards specialisation already emphasised

A further, though less basic, objection to vertical organisation throughout the industry is the geographical separation of functions which has grown up historically in Lancashire. In spite of all tendencies towards encroachment of one section of the industry on the territory of others which have been so characteristic of recent years, Oldham still remains predominantly a centre of low-count yarns, and Bolton of fine yarns; Burnley and Blackburn are still predominant centres for greys and Bolton for fine cloths. And in the ideal set-up, even if the historical traditions of the industry could be neglected, the capital cost of changing them could not

These are arguments against vertical organisation throughout the industry as an ideal set-up. They do not imply either impossibility of compromise, or the breaking-up of vertical concerns which have already grown up. These concerns, however, are rarely completely self-contained or "balanced." It is indeed doubtful if they ever could be properly balanced. Where there is surplus of spindles the firm may either (a) bring into the amalgamation which it joins its looms—and it is almost certain that these amalgamations in the spinning section will own looms for a long time, even if not in the ideal—or (b) dispose of its looms to an existing manufacturer or form a separate manufacturing company for the purpose.

(4) There are two very important functions in the industry which are, nevertheless, subsidiary to spinning, weaving and marketing. These are finishing and raw cotton purchase. In the ideal set-up there is no reason to postulate very great alterations from the present organisation in either

Finishing

(i) Finishing will probably continue to be carried out on a commission basis. Certain finishing firms may continue to develop manufacturing sides, but it is anticipated that with the improvement in marketing this tendency will decline. On the other hand, as already stated, the finishing combines are likely to be one of the most powerful instruments for bringing about this improvement in marketing as a practical step in the immediate future.

Each division of the finishing section—bleaching, dyeing, and printing, is already fairly fully amalgamated under the leadership of (a) Bleachers' Association, (b) Bradford Dyers' Association, British Cotton and Wool Dyers' Association, and English Velvet and Cord Dyers' Association, and (c) Calico Printers' Association, though there are still a number of outside finishing companies the ultimate amalgamation of which into the appropriate one of these three main groups must be postulated. The danger of having a strongly amalgamated finishing section operating on a commission basis is obvious, and in view of past history will not be overlooked by manufacturers. There will, however, be two protections, not only against the finishers reaping undue profits at the expense of the industry as a whole, but also against frustration of the vitally important constructive object of being able to concentrate all sections of the industry together at any one time on reducing costs and prices on a particular line for some market which is subject to particularly severe competition. The steel industry, for instance, through its British Steel Export Association, is beginning to learn, still in a limited way, how important this can be in meeting foreign undercutting and in presenting a strong united front directed at holding a market which, if covered by a number of small merchants as at present the case in the cotton industry, would be fatally vulnerable to attack.

The first protection will be the bargaining strength of the Producers' Association of the weaving section. Exploitation of the weak by the strong is an almost irresistible temptation and is better met by strengthening the weak than by weakening the strong. A more reasonable attitude is quickly reached when the weak begin to drill.

The second is that a vital condition of the maintenance of sectionalisation in the industry is that a joint co-ordinating body with full representation and strong powers must be provided for. This is discussed below.

Raw Cotton Purchase

(ii) It is usually held that through the Liverpool Exchange Lancashire has obtained her raw cotton cheaper and with better service than any other country, although it is sometimes claimed that the concentration of raw cotton imports in the hands of three companies gives Japanese spinners an advantage in this respect. While there are certain reforms which might advantageously be introduced in the methods of raw cotton purchase, particularly in connection with reconciling the conflicting interests of the Liverpool and Manchester Cotton Associations, and in preventing the former from putting any obstacles in the way of spinners in East Lancashire having their cotton shipped direct to Manchester, there is no reason to doubt the truth of this.

Proposals have from time to time been put forward with regard to the advantages which would accrue from ownership of ginneries by spinning combines in Lancashire. While there is a strong case for the inauguration of better technical contact between ginners overseas and importers and consumers in Lancashire in order to deal, for instance, with cases of adulteration or bad quality in the case of Indian cotton, there is no reason to believe that a case has been made out for the industry saving money over a period of years by the ownership of ginneries, although an analysis of ginning and freight costs compared with c.i.f. prices may apparently show rather a large difference. In this connection an example might be cited from the copper industry. The relations between the Empire producers and the domestic consumers—which were formerly bad—have been immeasurably improved by the formation of a Joint Committee with a technical sub-committee. It is very doubtful if, quite apart from unwieldiness on the organisation side, Birmingham consumers could obtain their copper any cheaper over a ten-year period if they owned the North Rhodesian mines. Although the number of ginneries is much larger than the number of copper smelters, similar joint committees, probably one for each cotton-growing country, might easily have similarly beneficial results.

Technical Co-operation between Ginners and Spinners

In this connection, however, the progress of the Japanese in their cotton-growing concessions, for instance in Abyssinia, should be very carefully watched. There is quite a likelihood that they may find the same difficulties as the Firestone Rubber Co. found in trying to grow rubber in Liberia, or Ford in doing the same in Para. On the other hand, they may achieve the same success as Dunlop in Malaya and U.S. Rubber in Sumatra. There is one particularly significant point in the analogy with rubber: although most rubber manufacturers who have launched out into rubber growing did so because they wished to avoid the effects of the very wide speculative variations in price to which that commodity is subject (and much more so even than cotton), and because they thought that although they would have to face periods such as the last two to three years, when prices were below cost of production, they would gain on the balance; a large part of the savings which in the best cases, such as the two cited above, have materialised, have been due to technical improvements which the manufacturer had known better than the ordinary grower how to bring about. An example of this is the spray-drying process which gives powdered latex and avoids the cost of breaking down sheets at the works. There is every reason to believe that similar technical improvements might be effected in the cotton industry, and this is a further argument for the joint committees proposed above.

While on the economic side there cannot be held to be any proof that the industry as a whole would benefit by widespread or complete ownership of its sources of raw cotton supply, there is a strong case for each amalgamation in the spinning section owning at least one ginnery in the cotton-growing countries from which it derives the bulk of its supplies. These ginneries would be looked on rather as experimental stations aiming at checking up costs of other independent ginneries in the country, and at introducing new and improved methods of preparing linters and linking up with the technical requirements of the spinner, rather than as sources of any appreciable part of the raw cotton requirements of the amalgamation. Later policy with regard to ownership of ginneries would have to depend on the results obtained with these "experimental" plants, but this is not a pressing need of the industry and it is too early yet to discuss further the ideal set-up.

Effect of Amalgamation on the Liverpool Exchange

There is, however, another very important aspect of the purchase of raw cotton, particularly as amalgamation in the spinning section progresses. Would the limitation of the number of independent buyers—assuming that each amalgamation in the spinning section introduces centralised purchasing—affect the functioning of the Liverpool Exchange as a true commodity exchange, and restrict the freedom of the market? Thus it is well-known that several times in the past, before steps were taken to counteract this, the knowledge that the L C C were in the market for a considerable bulk of supplies has led to anticipatory price increases. It is, in this connection, also essential for the industry that a free futures market should be maintained and widely used. The crux of the question is the future position of the jobber—would there tend to develop direct dealing between the importing merchant and the spinning amalgamation? It is very difficult to answer these questions, but two indications can be given: (1) if it is found that the jobber is in fact eliminated in this way and that the market is no longer functioning as a true commodity market, it will probably be necessary to reorganise the importing merchants into a central purchasing organisation for the whole spinning section; (2) indications from other commodity markets which have passed through the same phases as the Cotton Exchange and passed on a stage further are that this will not be necessary. Thus in the days when few copper consumers in this country purchased more than two or three thousand tons a year, when most of the imports were from foreign sources and when many of the producers had much smaller outputs than is the case now, most of the actual copper was sold on the Metal Exchange. There was, prior to and during the 1929 boom, a period when the producers tried to get together and organise direct sales. Thus, owing to the price policy pursued and the lack of knowledge of sales methods and consumers' preferences, was a ghastly failure. Now most of the producers selling in the United Kingdom, who are much bigger than formerly and mostly within the Empire, maintain sales agents in London who sell their metal to the consumers. The amount of copper metal dealt in on the Metal Exchange is relatively small, but its functions as an exchange continue, since it is still necessary for the producers to hedge on metal in transit and in stock and for consumers to hedge against orders, while there is also a certain amount of public speculation.

Raw Cotton Sources of Supply

Finally, there is the question of sources of supply of raw cotton. In general, as the change over from bulk lines of cheaper goods to finer cloths and specialties proceeds within the industry, there will be a relative increase in the percentage of long to short staple imports. In the average 1909-13 the ratio of imports from the United States to imports from Egypt and the Sudan was 4.3 : 1. In 1933 it was about 1.8 : 1. This has, of course, been due much more to the decline in the American than the rise in the Egyptian section; but the trend is likely to continue and the time will probably come when the United Kingdom imports more long than short staple cotton and yet manages to maintain a prosperous cotton industry.

One reason for the little use which has been made of Indian cotton by Lancashire is that it has not been suited in quality or type to Lancashire requirements. This the Jackson Committee, formed after the Ottawa Conference, has been doing its best to change, and there is reason to believe that Lancashire will to an increasing extent be able to obtain her requirements of short staple cotton from India. In view of the present trend in world trade and the linking up of imports with exports it is practically inevitable that Lancashire will have to purchase raw cotton from India in proportion to the cotton goods shipped there. Put in another way, Lancashire's export position in India would be enormously strengthened if she were a more substantial consumer of Indian cotton.

(5) Japanese Competition

During the last year Japanese competition has, perhaps, received more attention than any other individual commercial topic in the world. The seriousness of this menace not only to the cotton industry, which has been the first to feel it, but also actually and potentially to many other British industries cannot and should not be neglected, but there have been so many exponents of a Palmerstonian policy of break-

ing off all trade relations with Japan, prohibiting all entry of Japanese goods into the Empire and letting the rest of the world go hang, that it is very necessary to consider what the future position is likely to be.

About 50 per cent only of the total British exports of cotton goods go to the Empire. It is practically certain that given the strongest British government it is possible to imagine, complete exclusion of Japanese cotton goods from the Empire, or even tariff walls high enough to bring Japanese up to, say, British prices would be virtually impossible. If it were attempted, (a) any advantages reaped would not be a net gain as reprisals would certainly follow, and though perhaps Great Britain is not a country to be frightened by threats of reprisals from Japan, this aspect should not be forgotten in view of the position in which the Indian raw cotton producers found themselves when the Japanese boycott became effective; (b) Japanese competition in neutral markets over which this country has no control would be enormously intensified and British exports to these markets would be very quickly lost completely. It should be noted that when the increased Indian tariff forced a curtailment of Japanese exports to India, a concentrated attack was made on the Dutch East Indies, out of which the Dutch cotton manufacturers were almost entirely driven, having failed in the face of opposition from their own colony to obtain an anti-Japanese tariff.

In the past the trade balance between the United Kingdom and Japan has been strongly in favour of the former. In 1929 total British exports to Japan were £13.4 million and imports from Japan £8.2 million. In 1931 the balance had changed to one slightly in Japan's favour; but if invisible exports, particularly shipping, are taken into account, it was probably still substantially in our favour, and in 1932 there was again a large visible balance in favour of this country. The balance on all items probably still favours this country in spite of the further intensified Japanese drive in both visible and invisible exports such as shipping in recent months. Moreover, a serious dislocation of Anglo-Japanese trade relationships might have unwelcome political repercussions; and the economic problems involved require careful co-ordination with the political position which owing to the divorce of British economic policy from Foreign Office tactics they have hitherto not had.

The main argument of weight on the other side is that there are some good grounds for believing that Japan has been favoured by somewhat fortuitous circumstances in her meteoric progress as an exporter of cotton goods, and that with the end of the advantages reaped through currency depreciation and the potential growth of internal troubles arising from the now long-continued policy of taxing home consumption on behalf of exports, and strong tariff opposition in other countries, a check in the progress of her cotton industry may be anticipated.

There are three basic points which must be taken into consideration in formulating policy with regard to Japanese competition.

(1) No tariff action or agreement can in the long run protect Lancashire against Japan. The essential factor is internal reorganisation of structure and technique, and however important and difficult the Japanese competition question, anything which detracts attention from this reorganisation is not in the ultimate interests of the industry. Japan will perhaps always have lower wage costs than Lancashire, but if the structure of the industry in Lancashire was superior to that in Japan, instead of, at any rate in the case of the spinning section, considerably worse, the world picture of the cotton industry would be very different from what it is to-day.

(2) The Japanese are fundamentally an imitative nation. In so far as this manifests itself in the growing practice of copying Lancashire trade marks and designs, drastic steps must be taken through the legal authorities in the markets concerned. This, again, individual manufacturers or merchants are usually unable to do, and only a Marketing Corporation could attend to it successfully. But there is a deeper significance.

In almost all industries there is an irregular but continuous movement towards improvement of product and reduction in costs of production and capital costs of plant. This movement is best seen in the more modern industries which are under the stimulus of expansion; but it is an essential condition of the continued growth and even life of all industries, just as improvement in the "terms" of trade, as well as in the balance of

trade—i.e. export of an increasing proportion of high quality manufactured goods and import of an increasing proportion of raw materials—is an essential condition of the economic progress of nations. Lancashire, for a variety of reasons—but mainly owing to her inability and refusal to reduce costs since the war or even to tackle the problem of contraction resulting from this refusal—has not participated in this movement. The fine sections are, it is true, relatively much more important than before the war, but this has been due almost solely to the decline in the American sections and not to any change-over.

An imitative nation must always be behind in this movement. The chemical industry provides a good example. A party of Japanese engineers comes to Europe to see plant for the manufacture of soda. They return to Japan and build on a large scale faithful copies of what they have seen. But this is an industry in which costs, both capital and operating, are being continuously reduced, under the stimulus of competition, and by the time the Japanese plant is working, costs in Europe are well below what they were when the Japanese engineers saw them. The result is that as high a tariff is necessary to protect Japan against British and German imports as is necessary to protect the Indian cotton industry against Japanese imports.

Lancashire has the best textile machinery industry in the world behind her, and her technical staff are highly trained and have originality in them. It is mainly the structure of the industry which has prevented the change over from the cheaper to better class goods and the reduction in cost of the latter.

Japan will always be able to make cheap goods cheaper than Lancashire, and will also strive to make better class goods. Lancashire must reply by changing over from the cheaper to the better class goods and always keeping the novelty and quality above that of the Japanese, while at the same time reducing the cost so that the consumer is encouraged to pay a little more instead of being forced to pay a lot more if he wants Lancashire goods.

For two reasons, however, Lancashire must continue to make bulk lines: first the present organisation of the industry cannot be changed by a wave of the wand, and mills built to spin 40's cannot suddenly work on 80's; secondly, for reasons of marketing technique it is necessary to build up sales of better class goods on a basis of cheaper bulk lines.

(3) One of the few points on which most people in the cotton industry are agreed is that the need for reorganisation is desperately urgent. This is true beyond all argument, but on the other hand, the changes required are so fundamental and the Lancashire temperament so unwelcoming to change, that even if a measure of compulsion of the minority by the majority in the industry is employed, they are bound to take time, and meanwhile the Japanese wolf is at the door. It is on these grounds that some measure of agreement with Japan must be advocated. To attempt to reorganise Lancashire without such agreement would be to attempt to mend a broken down motor-car in the middle of a crowded road.

The terms of the recent Indo-Japanese agreement are widely regarded as having been too favourable to Japan, who gets terms based on her best year's showing when it is not known how far that showing could be kept up. There are difficulties and loopholes, as for instance in the non-inclusion of rayon mixtures. But if an armistice is demanded the side which is winning usually gets the better terms. It is for this reason that the breakdown of the Anglo-Japanese negotiations between the industries concerned must be looked on with regret. It remains to be seen whether the Governments will be able to do any better.

(6) Labour Disputes

Labour disputes have been a perpetual source of unrest throughout the whole industry since the war, but particularly since 1929. The main points to note are, first, that with the enormous contraction in output since the war the labour force has remained relatively unaltered—it has in fact only fallen by 9 per cent between 1925 and 1932, the time when the greatest contraction in output was taking place. Secondly, that while prices had risen relatively much more than wages up to 1925, in 1932 the price index for yarns was 93 and for cloths 116 against wages 161 (1913=100). Wages

have been relatively rigid, largely due to the piecemeal and often unnecessary attacks on them by employers. Thirdly, relations between employers and operatives have grown steadily worse, resulting eventually in complete breakdown, followed by slow and difficult re-establishment of conciliation machinery under the auspices of the Ministry of Labour. The attitude still tends to remain that what one side proposes the other will *ex hypothesi* reject. Fourthly, although the operatives' Unions do not, in general, oppose the introduction of new machinery as such, it has proved of the greatest difficulty to agree on terms. It is, at any rate, essential that the introduction of new methods of application of labour, such as the more-ooms system, and modern methods of payment, such as the substitution of a picks basis for the old Weavers' Lists, should not be impeded by attempts on the part of either side to use the change as a means of reducing or of increasing wages.

The present main problem, following the ground work for better industrial relations which was established after the strikes of 1932, is the enforcement of agreements when reached and it is hoped that the Cotton Manufacturing Industry (Temporary Provisions) Bill introduced in May 1934 will successfully provide for this. In particular the "more looms" agreement—a piece of real progress in the industry made in December 1932—is being threatened with breakdown owing to certain mills working four looms at the "more looms" rate of pay and thus in effect saving from 5 to 10 per cent in wages below the agreed rates.

With regard to the breaking of agreements it is very important to note that this is, on the whole, not normally done in a spirit of rugged individualism, but out of sheer necessity and has often had the full support of the operatives, though there are, of course, exceptions. The most serious and widespread breaches have occurred in outlying districts in small towns such as Barnoldswick and Harle Syke, which are fundamentally ill-situated for manufacturing for export owing to high transport costs and yet the population of which are almost wholly dependent on the cotton industry. The importance of this point lies in the fact that it is not enough, and would indeed produce serious trouble, to enforce agreements reached by a majority without any regard for variations in circumstances and the social problems involved.

Enforcement of Agreements

Yet agreements must be enforced, not only in order to secure uniform labour conditions throughout the industry but also as a prelude to extension of agreements already made and to new agreements reorganising obsolete systems, for instance of payment. The problem obviously has far-reaching implications with regard to the machinery of Government which are briefly discussed below.

The first concrete scheme for the enforcement of agreements was put forward in November 1933 by the T.U.C., entitled "Cotton Control Board and Licensing system." Its basic provision was for a Board appointed by the President of the Board of Trade with members drawn from all sections of the industry, which would have the power to issue licenses to approved firms and to withdraw them under specified conditions. It would then be made illegal for any firm to operate without a licence. This principle, though very far-reaching, is on the whole a direct way of tackling the problem and has much to commend it. It could, probably, not be worked unless it had the backing of the greater part of the industry, but it obtained quite substantial support from those in all sections of the industry who now consider that some form of compulsion is essential. Obviously if confiscation is to be the ultimate penalty then it has got to be possible to enforce it.

It should be emphasised that whatever method of implementing agreements is introduced, some provision must be made for dealing with derelict towns for the reasons already given. The method to be adopted can only be decided inside the industry and it will only be possible to carry it out by organisation of the spinning and weaving sections as described above; but it may include change-over of outlying plain-cloth districts to home-market instead of export production, or a redundancy scheme to enable these outlying weaving sheds to be disposed of and their workers re-employed elsewhere.

There are, of course, other methods of securing the enforcement of agreements. It is possible that a Trade Board might be successfully applied to the cotton industry

as the system has on the whole worked well in other industries. Wage rates and conditions would be arrived at by a process similar to bargaining assisted by the independent members acting in the capacity of conciliators, so that both sides have the benefit of the presence of these from the beginning, and agreements are sometimes reached which would have been impossible if the two sides had been left to negotiate in the ordinary way. The decisions of a Trade Board are, of course, legally enforceable after approval by the Minister.

Although direct legalisation of agreements has in the past been considered by the industry to be open to various objections, after conversations between representatives of the employers and operatives the Minister of Labour announced in April 1934 that the Government was prepared to introduce an Enabling Bill for the purpose of legalising wages agreements in the weaving section made between the employers' and operatives' organisations. The objects of the Bill are defined as follows: (1) to support voluntary collective bargaining, (2) to provide a basis on which further co-operation and reorganisation can proceed, (3) to give an experimental basis for assuring the maintaining of the voluntary agreements system at the joint request of both sides. Obviously this is a very great step forward and given success of the experiment it appears likely to be the way which will be generally adopted for implementing agreements in the future.

While it is thus seen that opinion has been rapidly moving in the direction of enforcement of agreements, and while there is no doubt that this will have to play an important part in the ideal structure, there is at the same time still far to go in reaching new agreements—extension of the "more looms" system to fine cloths, establishment of a pick or similar basis of payment in place of the obsolete Lists, and provision for the introduction of automatic looms, to mention only a few. These have been held up through the discouraging situation resulting from breaches of existing agreements and it is therefore hoped that following the new Bill there will be a renewal of effort in these directions.

Quite apart from the evolution of more satisfactory machinery for conciliation, enforcement of agreements, introduction of new conditions of work or basis of payment, it is essential that the emotional side of labour questions should not be neglected. The reorganisation of the industry envisaged provides a unique opportunity for a thorough review of the whole basis of the relations between labour and management. Many of the changes proposed deal with the more practical questions regarding improvement in earnings and conditions of work and at the same time with reduction of costs through increased efficiency. It should not be forgotten, however, that the increase of the prestige of labour is an equally important aim and every effort should be made to obtain the co-operation of the operatives in implementing the proposals planned.

Finance and Modernisation of Plant

Little has been said on what, though very important, are really subsidiary points—finance and the modernisation of plant. The financial structure of the industry is obviously chaotic and very unsatisfactory, but it is to be hoped that most of the past lessons have now been learned—refinancing, capital drawn locally, part paid shares, advances thrust out by the banks, indebtedness, bank ownership, etc. and with the reorganisation proposed (a) it is understood that the vitally necessary new capital would follow, (b) sub-committees of the Producers' Associations could be appointed to go into the question of clearing up the past muddle.

Technical modernisation of plant hangs on new finance. The will is there, the plant makers and technicians are there. When the industry is placed on a profitable basis re-equipment will quickly follow. It should, however, be planned and orderly re-equipment and provision must be made for this.

Use of existing organisations and need for factual approach

Various bodies have been outlined above for carrying out purposes such as the regulation of producing sections of the industry and the furtherance of marketing. It has also been emphasised that provision for vertical co-ordination throughout the

industry is essential. Many existing bodies such as the Federation of Master Cotton Spinners' Associations, and the Cotton Spinners' & Manufacturers' Association, if given a clear idea of the necessary function of the new bodies and expanded so that they could meet the demand on them, could be used as nuclei in forming the Producers' Associations. But there is a co-ordinating and controlling body at the top with full representation and powers—an Industry Council—also needed. Whether the Joint Committee of Cotton Trade Organisations, formed with this kind of idea in mind, could be used to fulfil this purpose, must be decided by the cotton industry itself.

Finally it may be added that any proposals will be jeopardised if a scientific and factual approach is not adopted in trying to put them into effect. The facts and figures relating to the cotton industry in Great Britain compare most unfavourably with several other countries, and although the Cotton Trade Statistical Bureau has done much sterling work in improving the position there is still a long way to go, and the spinner and manufacturer must be persuaded or goaded into making regular returns (under code numbers, of course) of spindleage installed and operating, purchases, production, sales and deliveries. Without such figures it is impossible to pursue a planned policy. In the second part of this report, an outline is given of the historical background and present position of the industry drawn up as far as possible to indicate how the gap between the existing and the reorganised industry can be bridged.

PART II.—SURVEY

(I) EXTENT OF THE DEPRESSION

Summary

(1) From the figures given in this section it can be seen that during the post-war years the industry as a whole has been working at less than 70 per cent of its pre-war capacity, and in 1931 (the worst year in this respect) at about 53 per cent

(2) The depression has been more severe in the American than in the Egyptian section of the industry, which up to 1928 enjoyed relative prosperity.

(3) The decline in the production and exports of cloth has been greater than in the production and exports of yarn

(4) Compared with other sections of the industry, the finishing section has been relatively prosperous throughout the post-war period

(5) Mainly owing to the abandonment of the gold standard the position of the industry improved considerably towards the end of 1931, and the worst period appears to have been mid-1930 to the latter part of the following year

(6) Unemployment has increased, while profits have very seriously diminished.

It will be observed that all these conclusions are qualitatively already well known. The objects of this brief survey are (1) to provide quantitative indication, and (2) to show the position of the various factors and indicators at different times.

The extent of the post-war depression of the cotton industry may be seen in the statistics of imports of raw cotton, production and exports of yarn and cloth, and unemployment

(1) Imports of Raw Cotton

During the years 1920 to 1932 net imports of raw cotton into the United Kingdom were considerably less than the average for the pre-war years 1909-13. In 1924, as shown in the following table, net imports of raw cotton were only equivalent to 72.1 per cent of the average net imports for 1909-13, whilst in 1931 they had fallen to 52.8 per cent of the pre-war figure. Since then there has been some recovery. It should be pointed out that total imports of raw cotton is only a limited value as an index of activity since Egyptian cotton generally speaking means more employment both in spinning and weaving than American cotton.

U K NET IMPORTS OF RAW COTTON

(Excluding Linters and Waste)

1909-13 (Average)	1920	1922	1924	1926	1928	1930	1931	1932	1933
1990.3	1647.6	1347.1	1435.5	1593.1	1439.4	1140.1	1049.9	1199.1	1348.4
100.0	82.8	67.7	72.1	80.0	72.1	57.3	52.8	60.3	67.8

As is well known, the American and Egyptian sections of the industry have not suffered to the same extent. The decline in the prosperity of the American section has been far greater than the decline of the Egyptian section. Some idea of the relative position of the two sections may be obtained by comparing the decline in the imports of cotton from the U S A with the imports from Egypt. From the following table it will be seen that in 1924 the imports from Egypt and the Anglo-Egyptian Sudan were equivalent to 91 per cent of the average for the period 1909-13, whilst imports from the U S A were only 55.6 per cent of their pre-war average. The Egyptian section was relatively prosperous up to 1928, and even the decline after that year was not as great as in the case of the American section, which has been suffering from acute depression since 1922. Another way of judging the relative decline of these two sections is by comparing the proportion of imports of cotton from Egypt to imports from the U S A in post-war years with that in the pre-war period. The average imports of cotton from Egypt in the period 1909-13 were approximately 23 per cent of the imports from the U S A, whereas in 1924, 1928 and 1930, imports from Egypt were approximately 88 per cent, 40 per cent, and 44 per cent respectively of the imports from the U S A.

U K. IMPORTS OF RAW COTTON FROM THE U S A AND EGYPT
(Million lbs)

Imports from	1909-13 (average)	1920	1922	1924	1926	1928	1930	1931	1932	1933
U S A	1,709	1,390	913	949	1,070	868	590	442	731	754
%	100.0	81.4	53.5	55.6	62.6	50.8	34.6	25.8	42.8	44.2
Egypt*	400	288	324	364	362	353	260	267	202	—
%	100.0	72.0	81.0	91.0	90.5	88.3	65.0	67.0	50.5	—

*Including the Anglo-Egyptian Sudan

(2) Production

(A) YARN. The production of yarn in the Census years 1924 and 1930 was equivalent to 70.5 per cent and 52.1 per cent respectively of the production in 1912. Since 1930 the yarn production has increased slightly. From the mill cotton consumption figures it is estimated that the production in 1932 and 1933 was 1,194 million lbs and 1,240 million lbs as against 1,031 million lbs. in 1930. From the table given below it will be seen that there has been a decline in the production of all the different counts in 1930 as compared with 1924, the smallest decline being in the production of 121's and over, and the greatest in the production of 41's to 80's.

U K. PRODUCTION OF YARN
(Million lbs)

	1912	1924	1930	1931	1932	1933
Total	1,979.0	1,395.2	1,031.1	1,058.0*	1,194.0*	1,240.0*
%	100	70.5	52.1	53.5	60.3	62.7
Up to 40's	—	1,022.0	807.8	—	—	—
41's to 80's	—	318.7	189.0	—	—	—
81's to 120's	—	55.9	86.7	—	—	—
121's and over	—	3.6	3.5	—	—	—

*Estimate

(B) PIECE GOODS. The production of cloth in the years 1924 and 1930 was equivalent to 69.2 per cent and 38.1 per cent respectively of the production in 1912. Thus there has been a greater decline in the production of cloth than in the production of yarn. It will be seen from the following table, which compares the production of cloth in 1924 and 1930 with the production in 1907 and 1912, that there has been a decline in the production of all kinds of cloth.

U K. PRODUCTION OF CLOTH
(Million linear yards)

	1907	1912	1924	1930
Total	7,088	8,050	5,572	2,918
%	88 0	100 0	69 2	38 1
Woven wholly or in part from coloured yarn	689	719	492	304
Unspecified	6,399	7,331	5,080	2,609
Finished—				
Bleached (not dyed or printed)	2,198	2,539	1,852	1,044
Dyed (not printed)	1,142	1,268	981	717
Printed (dyed or not)	1,326	1,305	800	614

(3) Exports

(A) **YARN** The following table gives the exports of yarn from the United Kingdom during the post-war years as compared with the average exports for the period 1909-13. It will be seen that exports declined before 1924, and in 1933 they had declined by about 38 per cent as compared with the exports for the pre-war period.

U K. EXPORTS OF YARN
(Million lbs)

	1909-13 (Av)	1920	1922	1924	1926	1928	1930	1931	1932	1933
Total	216.9	147.4	202.0	163.1	168.5	169.2	137.0	133.5	141.7	135.1
% (a)	100.0	68.0	93.0	75.0	78.0	78.0	63.0	62.0	65.0	62.2
% (b)	188.0	91.0	124.0	100.0	104.0	104.0	84.0	83.0	87.0	88.0
Up to 40's	—	94.4	122.1	76.2	88.5	77.1	69.5	60.7	73.8	71.8
% (b)	—	124.0	160.0	100.0	116.0	101.0	87.0	80.0	96.0	94.0
41's to 80's	—	87.3	61.4	61.6	58.5	66.5	50.7	52.1	51.7	45.0
% (b)	—	61.0	100.0	100.0	95.0	108.0	82.0	85.0	84.0	73.8
81's to 120's	—	18.0	16.8	23.4	19.2	22.5	17.8	18.8	14.9	16.5
% (b)	—	56.0	72.0	100.0	82.0	96.0	76.0	80.0	64.0	70.6
121's & over	—	2.7	1.7	1.9	2.3	3.1	2.6	1.9	1.8	1.8
% (b)	—	142.0	89.0	100.0	121.0	163.0	137.0	100.0	95.0	95.0

(a) Average 1909-13=100.
(b) Average 1924=100

(B) **CLOTH** The exports of piece goods have declined from 7,075 million linear yards in 1913 to 2,116 million linear yards in 1933 (a contraction of about 70 per cent). All kinds of cloth have contributed to this general decline, but the most serious decline has been in the export of greys which, in 1933, were 16 per cent of the pre-war figure. About 40 per cent of the total decline is accounted for by the decline in the exports of greys, while bleached and printed account for approximately 28 per cent and 30 per cent respectively.

U K. EXPORTS OF COTTON PIECE GOODS

(Million linear yards)

	1913	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Total	7,075	4,585	4,637	2,922	4,189	3,968	3,765	2,491	1,790	2,303	2,116
Grey, unbleached	2,358	1,402	1,303	1,122	1,198	904	955	547	289	357	357
Bleached	2,045	1,413	1,522	1,285	1,337	1,346	1,288	882	631	772	648
Printed	1,231	729	777	593	657	625	552	395	324	455	417
Piece dyed	1,151	858	832	752	824	838	826	559	456	594	585
Yarn dyed	290	183	203	172	174	165	144	108	90	125	109

(4) Net Output

A further indication of the depression in the cotton industry is the decline in the net output value as given by the Census returns. In 1930 the net output of the spinning section amounted to £19,621,000 as against £46,913,000 in 1924. In the weaving section the net output was £22,589,000 in 1930 as against £36,675,000 in 1924, while in the finishing section net output declined from £27,058,000 to £18,133,000. Although the net output of the industry was considerably less in 1930 than in 1924, costs of production (excluding costs of raw materials) had remained relatively rigid, and consequently the profits of the industry in 1930 were considerably less than those in 1924. The following table compares the net outputs of the spinning, weaving and finishing sections in 1930 with the net outputs in 1924.

U K. NET OUTPUTS OF THE SPINNING, WEAVING AND FINISHING SECTIONS

(£000)

	1924	1930
Spinning %	46,913 100	19,621 42
Weaving %	36,675 100	22,589 62
Finishing %	27,058 100	18,133 67

It will be seen from the above table that the decline in the net output of the finishing section was less than the decline in the net outputs of the other two sections, while the greatest decline was in the net output of the spinning section. Net output in finishing is, however, not confined to cotton goods, and in this connection it should be noted that the quantity of cotton piece goods treated in 1930 was 35 per cent below 1924, whereas that of woollen piece goods was 17 per cent below 1924. The full significance of these declines will be understood when it is realised that during the greater part of the post-war period, production and exports of other countries were increasing. This matter is fully dealt with on pages 115-137.

(5) Unemployment

Unemployment has continued at a high level, and the following table shows the percentage of insured workers unemployed (including short time) near the end of the months March, June, September and December since 1924.

U.K. UNEMPLOYMENT AND SHORT TIME IN THE COTTON INDUSTRY
PERCENTAGE OF INSURED WORKERS UNEMPLOYED (INCLUDING SHORT TIME) NEAR END OF THE MONTH

	March	June	September	December
1924	15.6	15.4	14.1	6.9
1925	7.1	8.5	10.0	6.7
1926	9.7	25.1	24.3	13.8
1927	6.0	7.0	9.3	10.0
1928	9.2	12.9	14.2	11.1
1929	11.5	13.7	12.7	14.4
1930	27.1	42.2	44.4	47.4
1931	36.5	39.6	44.6	27.4
1932	23.4	30.4	32.3	23.3
1933	23.4	24.3	22.3	19.7

(2) CAUSES OF THE DEPRESSION

Summary

(1) The productive capacity of plant has increased more rapidly than the world consumptive capacity for cotton goods, and has resulted in severe competition and short time working.

(2) The wide fluctuations and downward trend in the price of raw cotton during the post-war years has squeezed out of the industry a great deal of working capital.

(3) The lack of co-operation both within and between the different sections of the industry and in particular the divorce between production and marketing has made joint action for improving the structure and economic position almost impossible.

(4) Reorganisation in the Spinning Section has been hindered by the personnel, in particular in their efforts to avoid losing their jobs, by the existence of a large quantity of uncalled capital, and by the failure of the banks to perform their proper functions.

(5) In the weaving section, manufacturers of the coarser cloths have encroached on those of the finer cloths, with the result that the economic position of the finer end has been jeopardised.

(6) Costs of production compared with prices have been relatively rigid.

(7) The high cost of money, the severity of internal and external competition, and the unprofitability of the industry as a whole have hindered the modernisation of plant.

(8) Countries which before the war were important customers of Lancashire—e.g. India and China—have become large producers.

(9) Lancashire has been confronted with widespread increases in tariffs on cotton goods.

(10) The growth of the Indian industry behind a tariff wall has intensified competition from Japan in other markets.

(11) Civil unrest in India and China has further reduced Lancashire's sales.

(12) Lancashire's chief markets are agricultural countries, and as prices of agricultural commodities have declined relatively to those of manufactured goods, exports to agricultural countries have fallen more than exports to manufacturing countries. This has resulted in agricultural countries transferring their demand from Lancashire's relatively high grade goods to the inferior but cheaper products of other countries.

(13) The return of this country to the Gold Standard and the fall in the value of silver adversely affected Lancashire's trading position. The depreciation of the yen has also greatly increased the competitive strength of Japan at the present time

(14) The Lancashire cotton industry has not adjusted its structure to the changed world conditions during the post-war years.

During the post-war years the cotton industry in nearly every country has been depressed at one time or another. Lancashire has worked short time continually since 1921, whilst the cotton industries of the U S A, India, and even of Japan have not escaped financial losses. It is significant also that the cotton industry has been depressed during a period when the majority of the other industries were enjoying prosperity

The causes of the decline may be grouped under the two headings

- (1) Causes affecting all countries
- (2) Causes affecting the British Industry.

Causes affecting all countries

Between the years 1910 and 1927 the number of spindles in the world's cotton spinning mills increased from 189.6 million to 172.6 million (an increase of 23 per cent). The number of looms increased from 2.5 million to 3.2 million (an increase of 28 per cent). This increase in plant took place in two distinct periods, firstly from 1910 to 1914, when the number of spindles increased from 189.6 million to 150.7 million, and secondly between 1919 and 1927, when the number of spindles increased from 153.7 million to 172.6 million. The increase between 1919 and 1927 was encouraged by the textile machinery makers, while protective tariffs, as is shown on page 29, gave an added stimulus to the expansion. Actually during the war the total increase in manufacturing plant was almost negligible, and after 1927 there was a marked decline. The following table shows the consumption of cotton, and the total number of spindles and looms in the world for the years 1920-1938, compared with 1914

WORLD CONSUMPTION OF COTTON AND NUMBER OF SPINDLES AND LOOMS

	World Consumption of Cotton (000 bales)	World Spindleage (000)	Consumption of Cotton per 1,000 Spindles (bales)	Looms* (000)	Number of Spindles per 1,000 Looms
1914	22,574	150,787	150	2,820	53,400
1920	21,564	156,168	188	2,921	53,500
1921	19,118	157,081	122	2,810	55,900
1922	19,385	158,795	122	2,831	56,100
1923	21,893	162,857	132	2,922	55,600
1924	22,016	163,556	134	3,078	53,200
1925	22,718	163,912	136	3,109	53,700
1926	24,400	170,667	143	3,176	53,700
1927	25,837	172,623	150	3,228	53,400
1928	26,501	167,990	158	3,178	52,900
1929	25,471	167,085	153	3,115	53,600
1930	25,601	166,563	154	3,085	54,000
1931	22,854	162,278	141	2,964	54,700
1932	23,674	162,070	146	3,022	53,600
1938	24,989	157,755	158	3,282	48,000

*The International Federation of Master Cotton Spinners takes a triennial census of world loomage, the first of which was for 1930. The remaining figures given in the table are based largely on unofficial estimates and cannot be regarded as accurate.

From the above table the increase in spindles and looms does not appear abnormal, and it will be seen that the numerical proportion between looms and spindles, during the post-war years, has not been very different from what it was in 1914. If, however, account could be taken of changes in the capacity per spindle since the war, the proportion would be seen to have changed considerably. Total equivalent spindles in recent years is much higher in relation to 1914 than appears from the above table. Hence consumption of cotton per 1,000 equivalent spindles is lower, and the number of equivalent spindles per 1,000 looms higher. Full figures for world equivalent spindles are, however, not available.

In the majority of the post-war years (with the exception of 1927 to 1930 and 1933) the consumption of raw cotton per 1,000 spindles has been less than that in 1914, which indicates (taking the consumption of raw cotton as an index to the consumption of cotton goods) that the world productive capacity of plant has increased more rapidly than the world consumptive capacity for the finished product. This impression is strengthened if, instead of considering equipment only in a statistical form, consideration is also given to output per unit. In the first place, since new spindles in new countries are working double or treble shifts, as against single shift working in the old countries, they have a correspondingly greater productive capacity, while in the second place the proportion of ring to mule spindles is much higher than before the war, and technical improvements in plant have also increased the output per spindle. Unfortunately, no figures are available to show the extent to which the productive capacity of the world's cotton industry has been enlarged by increasing the output per machine, but Baron D'Andoy estimates that the average output per operating spindle in 1928 was 20 per cent greater than in 1918. In 1927 the world consumption of raw cotton was 14 per cent greater than in 1914. The number of spindles in 1927 was approximately 172.6 million, which on Baron D'Andoy's estimate would be equivalent to 207 million on the 1918 basis. Thus, while the consumption of raw cotton had increased by 14 per cent in the period referred to, effective spinning capacity had increased by about 42 per cent. This has meant the spreading of a larger demand over a much larger number of spindles, thereby, as already pointed out, reducing the average output per spindle. This increase of plant has mostly taken place in eastern countries at the expense of Europe and the U.S.A. In Part IV, the growth of the cotton industry in Japan, China, and India has been outlined. The following table showing the consumption of raw cotton by Europe, Asia and the U.S.A. in 1918 and 1932 shows the advance of Asiatic consumption at the expense of the other continents. The greater part of Asia's gain is represented by Europe's loss.

CONSUMPTION OF RAW COTTON
(Million bales)

	1918	%	1932	%
Europe . . .	12 08	58	8 67	39
U.S.A. . . .	6 57	29	5 67	26
Asia	4 07	18	7.72	35

Up to the present attention has been concentrated on the Japanese industry, but it must not be forgotten that the development of the Chinese industry has been more rapid than that of its other eastern rivals (See pages 122-125)

This world-wide over-expansion of the industry, besides being responsible for the working of short time in many countries, has also had other serious effects. In the first place, it has been directly responsible for the intense competition which has been the chief characteristic of the post-war era. This competition has resulted in ruinous price-cutting, often necessitated by the need for cash to pay interest on fixed charges. This price-cutting, however, has not resulted in an extension of sales, but has merely been responsible for the transfer of business from one producer to another.

The vast bulk of consumers of cotton goods are to be found in agricultural countries, and their demand chiefly depends upon the price which they obtain for their products, with the result that in times of depression a decrease in the price of cotton goods does not necessarily cause a corresponding increase in the demand, although on the other hand, in times of stable primary commodity prices, there is no doubt that the demand for cotton goods is very susceptible to price reductions, as has been repeatedly proved by the Japanese. In contrast with this, any slight improvement in the price of cotton goods calls forth an increase in supply, for as long as some contribution can be made to supplementary costs, it is cheaper to work plant than to leave it standing idle. Thus, over the post-war period, demand as a whole has been irresponsive, while supply has been extremely responsive. Price-cutting, of course, has not only taken place between industries of different countries, but has also been common within the different industries. One of the results of this excessive competition has been that the older centres of the industry have declined compared with the younger centres. Lancashire has lost ground to Japan, Bombay is losing ground to the newer centres such as Ahmedabad, and Japan's future may be jeopardised by an expansion of the Chinese industry.

Another factor which has contributed to the general decline in the cotton industry has been the fluctuations in raw cotton prices. On the average, the price of raw cotton constitutes about half the total cost of the cloth, ex-works, and as fluctuations in raw cotton prices are reflected in the prices of the finished products, the manufacturers or merchants stand to lose considerable sums, as it is unusual for either of them to hedge against fluctuations. Moreover, even the spinner is not protected entirely

against fluctuations, as even if he hedges in the normal way the price of the cotton which he holds may not move in exact consonance with the price of the standard raw cotton (See page 51) The fluctuations since the war have been much more violent than those in pre-war years Between January 1920 and February 1921 the price of American Middling fell from 42 41d per lb to 7 18d per lb, between January 1924 and December 1926 the price fell from 21 1d per lb to 6 8d per lb, and between June 1928 and December 1930 from 11 98d per lb to 5 84d per lb These falls in cotton prices inflicted severe losses on the manufacturing and merchanting classes, and squeezed out of the industry a great deal of working capital

Besides, however, these general causes of depression, which affected almost all countries to a greater or less extent, this country had to meet additional difficulties, some of which were peculiar to it alone

Causes affecting the British Industry

There has been a complete lack of co-operation, not only between the different sections, but also within the different sections of the British industry Marketing has been completely divorced from production, with the result that the interests of manufacturers have often been sacrificed to those of the merchant Moreover, the merchant has failed to keep in touch with the distribution of his goods in the different markets, and this structural vulnerability has enabled Lancashire's competitors to secure firm foothold in the markets of the world Lancashire has further been handicapped by the diversity of its products, often more the result of attempts to create a spurious individuality rather than of genuine advances in technique or design, thus making economical production impossible Not only has the manufacturing side of the industry had to contend with ineffective marketing, but it has also been confronted with powerful finishing combines, able to extort high prices for their services During the post-war depression, when spinning and weaving have been, on the whole, unprofitable, the finishing companies have been able to continue paying relatively high dividends

Within each section of the industry—spinning, weaving, and merchanting—there exist a multiplicity of units, intensely individualistic in outlook, and unable to co-operate for long in any policy likely to improve the economic position of the industry as a whole Contraction in all sections is a vital necessity, and yet past history has shown that this will not be achieved voluntarily

In the spinning section reorganisation has been hindered by men who have lost all except their jobs, by the existence of a large quantity of uncalled capital, and by the failure of the banks to perform their proper function by withdrawing the "props" which were supporting financially unsound concerns The existence of a large number of insolvent companies has increased the difficulties of the industry, for in order to raise cash they have been compelled to clear stocks and dispose of output at cut-throat prices

The weaving section, too, which on the whole escaped from the disastrous financial operations of 1919-20, rather by luck than by good management, has suffered from its disintegrated character, and consequent inability to tackle the problems of contracting markets The manufacturers of coarse cloths have tended to encroach on those of higher-grade cloths, with the result that the economic position of the finer end has been jeopardised by competition from these migratory producers But the most important example of the results of this lack of planned policy in the weaving section is to be found in its labour relations, which need here only be described as catastrophic (See pages 88-90) It has been amply proved that an industry in which producers have no common conception of co-operation cannot hope to meet the well-directed attacks of its rivals on the markets of the world

Lancashire has suffered from the relative rigidity of its costs compared with prices Wages (see page 80) have been relatively stable, and while concessions have been made they have not helped to strengthen the financial position of the industry, for they have frequently been frittered away in useless price-cutting In the past Lancashire has devoted too much attention to wage reductions as a means of reducing costs of production Costs must be regarded in their entirety, and no single item must be accorded any undue prominence Inefficient and ineffective marketing, lack of co-operation both between and within different sections, interest charges, and even directors' fees are items in total costs as well as wages Yet comparatively little attention has been given to these other factors (though in certain cases the incidence of interest charges has been temporarily reduced by moratorium schemes), and it is only through a reduction in the toll which they extract that costs which are in the control of the industry can be brought into line with those of competitors abroad As wage reductions have failed in the past to secure any increase in trade, and only succeeded in bringing about an atmosphere of bitterness and strife, which has had catastrophic effects on the morale of the industry, it is essential that further attempts should not be made, at any rate until the structure of the industry has been reorganised, and then only if it is proved that further sacrifice by labour is necessary to enable the industry profitably to dispose of its output on world markets

A further depressing influence has been that owing to high cost of money and lack of confidence in the industry, little capital has been available for the modernisation of plant

For a full discussion of the internal influences affecting the British cotton industry reference must be made to the parts of this report (pages 48-75) which deal with the different sections of the industry

At this stage, however, the external influences which have adversely affected the industry must be considered

Before the war the United Kingdom did about two-thirds of the total world's export trade in cotton goods. The east was our biggest market, and here Lancashire's position was particularly sound. The war, however, closed the normal channels of international trade, and owing to the almost insatiable demands of the Allied Powers and the restriction of shipping, Lancashire was forced to neglect those markets which were still left open. This break in trading relations was to have a permanent effect, for it gave Lancashire's competitors an opportunity to establish themselves, and at the same time encouraged countries which had been important customers to develop their own industries. As is well known, Japan seized the opportunity of the war to entrench herself in those markets where formerly Lancashire's position had been considered unassailable, while the Indian industry expanded in order to replace Lancashire goods by domestic manufactures in the vast Indian market. In addition, the immediate post-war boom and internal influences such as organised short time and the failure of the banks to enforce quick liquidations, gave these powerful competitors further opportunity to consolidate their position.

In addition to increased competition from the development of the Japanese industry, Lancashire has been confronted with widespread increases in tariffs on cotton goods, which have had serious repercussions. In 1918 India, China, Brazil and the Argentine took about 60 per cent of Lancashire's total exports, and since then all these countries have either increased their tariffs or imposed prohibitive tariffs for the first time. This increase in tariffs, which has, of course, been fairly general throughout the world, has also affected other cotton industries than the British, for it has been partly responsible for the over-expansion described on page 26. For example, without a tariff it is unlikely that the Indian industry would have developed to the extent it has, for the growth of this industry has been artificially forced, and even now its costs are, in a great many cases, relatively high. Moreover, the expansion of the Indian industry has certainly intensified Japanese competition in other markets, because particularly since the recent tariff increase in July 1933, the high protection afforded to the Indian mills has compelled the Japanese to divert the products of their naturally expanding industry to markets other than India. In other words, the expansion of the Indian industry is indirectly responsible to a quite substantial extent for the severe competition from Japan which Lancashire has to face in other countries. The following table, showing the import tariffs levied by India, China and the Argentine, on cotton yarn, and piece goods, will give some idea of the increase in tariffs which this country has had to face.

IMPORT DUTIES ON COTTON YARNS AND PIECE GOODS, 1914, 1924 AND 1933

		1914	1924	1933
India	Cotton Yarns 40's	Free	5% ad val	6½% ad val
	Cotton Piece Goods	5 5% ad val.	11% ad val	25% ad val
China	Cotton Yarns 40's	0 8d per lb	1 1d per lb	1 47d per lb *
	Cotton Piece Goods			
		Per Piece†	Per Piece†	Per Piece†
	Unbleached	4 0d	11 8d	20 6d
	Bleached	4 8d	18 4d	36 3d
	Printed	2 9d	7 7d	37 1d
	Dyed	5 8d	14 2d	50 4d
Argentine	Cotton Yarns 40's	4 0d. per lb	6 0d per lb	1 66d. per lb ‡
	Cotton Piece Goods			
	Unbleached	4 1d. per lb.	2 7d. per lb.	4 8d. per lb
	Bleached	4 7d " "	5 5d " "	6 1d " "
	Printed	5 8d " "	6 2d. " "	6.9d. " "
	Dyed	5 8d " "	6 2d " "	7 8d. " "

* Plus Surtax amounting to 14 per cent of the duties.

† Pieces of 40 yards.

‡ Plus Surtax amounting to 10 per cent of the duties.

It was hoped that the Ottawa Conference would result in a lowering of import tariffs on Lancashire goods, but the concessions which were obtained have made little difference to the import trade, partly because there was not a very strongly organised Lancashire representation. As is pointed out on page 181 the Canadian duties are still at a prohibitive level, and Australia has not modified the high rates which previously obtained. South Africa has agreed to admit Lancashire goods not exceeding 1s 3d per yard in price at a duty of 5 per cent ad valorem, and foreign goods at a duty of 10 per cent ad valorem or 1½d per yard, whichever is the higher. The duties on cotton piece goods exceeding 1s 3d per yard in price are as follows: Lancashire goods 15 per cent ad valorem, and foreign goods 15 per cent ad valorem or 3d per yard, whichever is the higher. Thus South Africa, by fixing a minimum specific duty on cotton piece goods of foreign origin, gives some protection to Lancashire goods against cheap and inferior goods of other countries, though the actual extent of the protection afforded is not very great. British India made no concessions to this country at Ottawa as far as textile goods are concerned, although when the foreign tariff was raised in July 1933, a substantial Empire preference was provided for, and the Government of India undertook to the recent British Textile Mission to India to negotiate with the British Government a supplementary agreement to cover textiles. On the whole it may be said that the benefits to Lancashire from the Ottawa Conference were almost negligible. In recent months, however, more serious attempts have been made to secure a reduction in the tariffs levied by foreign countries, and in the trade agreement concluded with the Argentine, for instance, the import duties on cotton piece goods have been generally reduced, though what effect the agreement will have on Lancashire remains to be seen. In the agreements with Finland, Norway and Sweden, also, there has been a reduction in the import duties on all important classes of cotton piece goods. There is no doubt that the imposition of periodic increases in import tariffs by consuming countries has been one of the chief causes of the depression in the Lancashire industry.

At various times the abolition of the Most Favoured Nation clause has been advocated. It is impossible to enter here into a general discussion of this question, but although, superficially at any rate, the step has much to commend it, although it may, if all else fails, have to be used as a bargaining weapon, and although some alteration of the present position with regard to most-favoured nation treatment is bound to come, when the step is advocated as a means of enabling the Lancashire cotton industry to meet Japanese competition, it should be borne in mind that if the Most-Favoured Nation clause were abandoned in any market over which this country's influence extends as far as tariffs are concerned, then the goods so excluded by means of the prohibitive duties often advocated would only be directed by Japan to markets over which this country has no control. There is, in fact, ample evidence from the results of tariffs already imposed to show that any discrimination against Japan by means either of further tariffs or of the abolition of the Most Favoured Nation clause would result in a transfer of competition from Empire to foreign markets, while it is far from certain that countries like Ceylon, for instance, would be prepared to exclude cheap Japanese cotton goods.

A table showing the division of British exports of cotton goods between the Empire (both Dominions and Crown Colonies) and foreign markets is given on page 43. From this it will be seen that at the present time the Empire markets account for only about 55 per cent of the total.

In addition to the development of the domestic industries in her chief markets, Lancashire has had to face further difficulties caused by civil unrest and the anti-British feeling which has been prevalent in the East. During the post-war years China has not had a stable government, and conditions have been such that trade with other nations has only been carried on with considerable difficulty. The purchasing power of China has not only been reduced as a result of the depreciation of silver (see page 31), but has been seriously curtailed by the incessant fighting between rival armies, and the establishment of law and order would certainly lead to an improvement in trading conditions.

At the present time the attainment of law and order is being sought through Japanese expansion, as in Manchukuo, and it is certain that the Japanese will not readily allow a share in such markets to be obtained by Great Britain. The attitude toward China recently adopted by them is a further confirmation of this. In spite, however, of the unfavourable experience of Lancashire in negotiating with Japan, other industries which are in a stronger technical position have shown that a compromise is not out of the question.

It is doubtful, also, how far increased government control over the internal situation in China would benefit Lancashire, as the Chinese industry, owing to its rapid expansion in recent years, seems capable of supplying any increased demand. Moreover, the anti-British feeling both in China and India has enhanced the effect of tariffs, and although it is impossible to distinguish the results of the latter from those of the former, the boycott in both countries has certainly been a contributory factor to the decline in Lancashire's export trade. Events in Manchuria have, of course, been mainly

responsible for the abandonment of the anti-British boycott in China and the imposition of a ban on Japanese goods, but this can probably only be regarded as a temporary turn of the wheel of fortune, and in any case Lancashire, largely owing to lack of strong marketing organisations, has not been able to exploit or consolidate her improved position. In India, as in China, the domestic producers gave their support to the boycott, as it enabled them to expand their connections and develop their industry, and even when the political differences between this country and India are settled it is doubtful whether Lancashire can, as a result, expect any great increase in trade. (See page 88.)

The chief markets for Lancashire goods are agricultural countries, and the quantity and quality of the goods which they buy depend on the prices which they obtain for their products. Since 1929 the prices of agricultural commodities have declined relatively to those of manufactured goods, and consequently, as is to be expected, exports to agricultural countries have fallen more than exports to manufacturing countries. The effect of this reduced purchasing power in the agricultural countries has been felt more acutely by Lancashire than by her chief competitors, as she has specialised in the production of high quality goods, and any reduction in purchasing power transfers the demand to the cheap and inferior products of other countries. The structure and production costs of the Lancashire industry are not suited for competition in the low-grade cloth market. Recovery in agricultural prices would certainly enable Lancashire to improve her position, but to what extent depends largely on whether the consumer, having once acquired the habit of purchasing cheap cotton goods, will continue to do so, irrespective of his improved economic position. Moreover, when agricultural prices do begin to move upwards, Lancashire can only hope to increase her exports of the higher grade goods if she is willing to reorganise her marketing methods.

Lancashire has also been adversely affected by monetary factors, one within and two outside the country's control. The first—the return to the Gold Standard in April 1926—was responsible for a fall in the price (in terms of sterling) of British goods on the world's markets. Had this fall in prices been accompanied by a fall in the costs of production, other than the cost of raw cotton, Lancashire's trade would have been unaffected, but this was not the case. Moreover, the spinning section had to bear debts contracted when the value of sterling was approximately half its present value. Owing to the rigidity in internal costs—wages, salaries, interest charges, and general overheads—and the fall in receipts due to the return to the Gold Standard at the pre-war parity, the ability of Lancashire to produce at a profit was considerably reduced, and, indeed, in the case of many firms, profits were turned into losses. While, however, it is true that the return of the pound to the old parity seriously affected Lancashire's earnings, too much attention has been devoted in the past to this fact, and too little to the fact that the industry failed to reorganise itself so that its costs were brought into equilibrium with the changed price level.

The second monetary factor—over which this country had little or no control—is the decline in the price of silver. A contributory factor—but only a minor one—in reducing the value of silver was the return to the Gold Standard by most countries after the war. The fall in the value of silver tended to reduce exports of British goods to China, and at the same time encouraged Chinese manufacturers to expand their export trade. The following table shows movements in the price of cotton goods and in the price of silver. It will be seen that the increase in the price of silver, relatively to the 1918 price, between 1924 and 1928, was much less than the increase in the price of cotton goods. Thus the price of cotton goods in terms of silver, in this same period, was greater than the pre-war price.

RELATIVE PRICE MOVEMENTS OF COTTON CLOTH AND SILVER

	Index of Prices of Cotton Cloths %	Price of Silver (d per oz.)	Index Price of Silver %
1918 .	100	25.76	100
1924 .	234	34.00	132
1925 .	208	32.13	125
1926 .	163	28.69	111
1927 .	164	26.03	101
1928 .	169	26.75	104
1929 .	166	24.24	94
1930 .	137	17.69	69
1931 .	116	14.59	57
1932 .	116	17.84	69
1933 .	115*	18.14	70

* Estimated from Trade Returns.

A third monetary factor which has adversely affected Lancashire in the last two years has been the depreciation of the yen (see page 121). While very great advantages have undoubtedly accrued to Japan through this, it is sometimes forgotten that only since 1932 has the currency been depreciated to any great extent, whereas Japanese competition was very intense prior to that date. Further also, the advantages which Japan has achieved from this policy cannot be permanent, as any prolonged depreciation will result in a rise in the cost of living and in interest charges in general. On the other hand, Japan probably hopes to consolidate later markets initially won in this way, and it might be advocated that the way to deal with the situation is to impose a dumping duty on Japanese products, but the dangers of this course, insofar as reprisals in markets outside any British influence or control may be provoked, should not be forgotten as long as Lancashire is not in a sufficiently healthy or strongly-organised position to set the pace.

In addition to these three monetary factors, Lancashire's exports in the last two years have been seriously affected by the various exchange restriction schemes, and also by the inability, under moratorium schemes, to secure payment from foreign purchasers. Doubtless exporters, unable to secure credit for long periods, have been unwilling to supply markets from which it seemed that payment for goods supplied would not be readily forthcoming. This has been particularly true of the South American markets, and has been one of the chief causes of the decline in exports from the United Kingdom in the last two years.

It will be seen from the above summary of the causes of the depression and from the analysis of the position of the various sections of the industry (pages 48-75) that the British cotton industry has been unable to adjust its structure to meet the changed world conditions since the war, and particularly throughout the recent depression. An industry which has a rigid and obsolete structure cannot hope to survive in a world, the chief characteristic of which is rapidity of change. To achieve a flexible structure, a constant alertness of mind to these changes in the economic system is above all necessary. The Lancashire cotton industry has sadly neglected this, and has attempted to continue to compete in a twentieth century world with methods—both of production and marketing—reminiscent of an age when it could afford to regard competition from other countries with contempt and disdain. Consequently the re-organisation needed is now all the more drastic, and the choice of where and how to begin all the more difficult.

(3) MARKETS

Summary

- (1) Approximately 60 per cent of the total United Kingdom production of yarn and piece goods is exported as against 75 per cent in 1913. The home market is continuing to take a greater share of a diminished output.
- (2) The decline in the quantity of yarn retained for domestic consumption in post-war years has been greater than the decline in the quantity exported. Exports of yarn of all counts represent about 15 per cent of the production.
- (3) The export trade takes the largest proportion of the output in the case of the finer counts. The great bulk of the yarn exported consists of counts up to 80's. Exports of yarns below 40's and above 120's have not declined much compared with the 1924 level. Exports of 41's to 120's are nearly 30 per cent below the 1924 level.
- (4) Exports, measured in linear yards, represent rather over 80 per cent of the total production of cloth. The decline in the quantity of cloth retained for domestic consumption has been less than the decline in the quantity exported.
- (5) The chief markets for British piece goods are India and Ceylon (25 per cent of the total in 1933), Europe (18 per cent); Central and South America (15 per cent), and Africa (15 per cent). Compared with 1924 the relative importance of India has greatly decreased, and of the others, particularly Africa, increased.
- (6) The most serious decline in the exports of piece goods has been in greys, and the decline in the exports to India between 1913 and 1928 accounted for approximately 51 per cent of the total decline in the exports of piece goods.
- (7) It is estimated that the increase in Indian production accounted for approximately 70 per cent of Great Britain's loss in that market, while Japan accounted for rather over 25 per cent. Furthermore, the development of the Indian industry

and particularly the resultant increased tariff protection given to it has been partly responsible for the increased Japanese competition in other markets. Imports of piece goods from the United Kingdom as a percentage of the available supply have continually declined. Bleached and printed goods have declined much less than greys, and whereas greys represented 47 per cent of total British exports to India in 1924, in 1933 the figure was 23 per cent.

(8) Lancashire has also suffered considerable losses in the Chinese market, due to the development of the Chinese industry and to Japanese competition. While the British control a substantial proportion of the total Shanghai capacity, and certain concerns, such as the Calico Printers' Association, are expanding their capacity there, owing to the nationalistic policy of the Nanking Government, and to the growing strength of the Japanese in Manchukuo and North China, there is little likelihood of Lancashire being able to recapture much of this trade.

(9) To prevent further Japanese inroads on Indian trade, the Government of India denounced the trade treaty of 1904, while the British Government gave notice to terminate the Most Favoured Nation agreement with Japan in the West African dependencies. Following the boycott of Indian cotton by Japanese spinners, conferences were held in India which resulted in an agreement providing for the linking up of Japanese imports of Indian raw cotton with their exports of piece goods to India, for the establishment of a quota on such exports and for the reduction of the Indian tariff from 75 to 50 per cent.

(10) Negotiations held in London between representatives of the British and Japanese cotton industries failed even to agree on a definition of the scope of the discussions, and the matter subsequently passed into the hands of the Governments concerned.

The main points to be considered in connection with Japanese competition are as follows:

- (i) Only 55 per cent of the total British exports go to the Empire. A substantial part of these even, and the entire remainder, are vulnerable to attack from Japan from which no tariff action which could be taken by this country could protect them.
- (ii) If attempts were made to take such tariff action in the Empire, difficulties would be encountered—e.g. in the case of Ceylon. Holland has had exactly the same experience in the Dutch East Indies.
- (iii) The trade balance between the United Kingdom and Japan is favourable to the former, though less so than formerly.
- (iv) A rupture of Anglo-Japanese trade relations would have serious political complications. Closer co-ordination between economic and political policy is, in this connection, necessary.

(11) Government negotiations proved equally unsuccessful, since the Japanese Government refused to alter materially its original attitude. On May 7th, 1934, therefore, the British Government announced that quotas would be imposed on all foreign imports into the British colonies based on the average imports of the years 1927-31. The quotas will affect Japan more than any other country owing to the enormous growth of Japanese imports into the British colonies during the last two years.

(12) The Clare-Lees delegation to India in October 1933 concluded an agreement with the Bombay millowners of some importance to Lancashire, according to which the Indians agreed to ask for a lower protection against this country than against foreign countries.

The cotton industry has always been regarded as an export industry, and it is estimated that approximately two-thirds of its total production of cloth (by weight) is exported. In the post-war years it has been the decline in the export markets which has been almost entirely responsible for the decrease in production in Lancashire. The home consumption, on the whole, has remained nearly the same as in pre-war years, though since 1930 there has been some reduction even in this market.

Yarn production and exports

In 1930, 1,081 million lbs of yarn were produced, of which 153 million lbs (14.9 per cent) were exported. In 1924 total production amounted to 1,395 million lbs, of which 181 million lbs (13 per cent) were exported. The following tables show production, exports, and the amount retained for home consumption of the different counts of yarn. Imports are negligible, in no case having represented more than 1.2 per cent of the production.

U K. PRODUCTION AND EXPORTS OF YARN BY COUNTS, 1924 AND 1930

Counts of Yarn	Production (000 lbs)	Exports (000 lbs)	Exports as Percentage of production	Retained for home consumption (000 lbs)
Up to No 40, 1930	807,810	65,901	8.2	741,909
1924	1,021,985	76,181	7.5	945,804
Over No 40 and up to No 80, 1930	183,018	50,679	27.7	132,339
1924	313,710	61,559	19.6	252,151
Over No 80 and up to No 120, 1930	36,748	17,819	48.5	18,929
1924	55,874	23,877	41.8	32,497
Over No 120, 1930	3,504	2,589	73.9	915
1924	8,623	1,939	53.5	1,684
Total, 1930	1,031,080*	153,128	14.9	877,952
1924	1,395,192*	181,152	13.0	1,214,040

* Total single yarn made whether sold as such or as doubled yarns or thread

From the above table it will be seen that the greater part of the production of counts up to No 80 is retained for home consumption, whereas there is a tendency for the export market to take a larger proportion of the finer counts.

Piece-Goods production and exports

In 1930, 3,100 million linear yards of cotton piece goods of all kinds were produced, of which 2,530 million yards (82 per cent) were exported. In 1924 production totalled 5,590 million yards, of which 4,649 million yards (83 per cent) were exported. Thus, as already pointed out, the decline in the amount retained for the home market (39 per cent between 1924 and 1930) was less than the decline in exports (46 per cent in the same period), and this decline appears all the greater when production and exports are given by weight, thus indicating that the amount of yarn contained in the average piece of cloth exported was less in 1930 than in 1924. The following table shows production, exports and the amount retained for home consumption of cotton piece goods of all kinds.

U K. PRODUCTION AND EXPORTS OF COTTON PIECE GOODS, 1924 AND 1930

Cotton Piece Goods of all kinds	Production	Exports	Exports as percentage of production	Retained for home consumption
1930				
Mill linear yards	3,100	2,530	82	570
Mill square yards	3,800	2,433	74	867
Thousand cwts .	6,600	4,198	64	2,402
1924				
Mill linear yards	5,590	4,649	83	941
Mill square yards	6,027	4,485	74	1,642
Thousand cwts .	10,348	7,871	71	2,977

It will be seen from the above table that the greater part of the production is exported. Imports, though they increased between 1924 and 1930, are negligible (under 3 per cent by yardage).

In 1924 there was an average of 1.08 square yards per linear yard produced, whereas in 1930 there was only 1.06—showing a 2 per cent decrease. Similarly, in 1924 there was an average of 0.241 lbs per linear yard produced, whereas in 1930 there was only 0.238 lbs.

Yarn exports according to countries and counts

As has been shown above, the great bulk of the yarn is retained for home consumption. In the period 1909-18 the average exports of yarn amounted to 216.9 million lbs (100 per cent), in 1924 this had declined to 168.1 million lbs. (75 per cent), and in 1930 to 137 million lbs (63 per cent). The following table shows total exports of yarn and the chief destinations for the years 1924 to 1933 as compared with the average for 1909-18.

U K EXPORTS OF YARN
(Million lbs)

	(Av) 1909- 1918	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Total	216.9	168.1	189.5	168.5	201.5	169.2	166.6	137.0	133.5	141.7	135.1
Germany	50.6	42.8	56.6	33.9	56.6	43.6	39.4	33.4	32.9	29.1	30.0
Holland	42.2	36.3	50.4	37.6	41.8	33.5	32.2	28.6	23.5	18.2	13.8
British India	35.7	20.2	16.0	20.5	21.6	21.7	21.4	12.0	11.2	14.6	10.7
Switzerland	7.5	9.8	8.2	7.8	10.4	9.1	8.0	6.0	6.3	3.9	3.6
Belgium	4.7	5.3	5.7	6.7	8.6	5.8	6.8	6.7	4.3	3.7	5.3
France	4.1	6.8	5.3	8.0	3.8	4.2	5.9	5.4	3.1	1.1	0.9
Rumania	8.6	4.0	4.4	7.5	7.1	5.8	4.9	5.9	6.3	11.4	12.9

From this table it will be seen that Germany is the largest purchaser, taking on an average in the years 1909-18 23.8 per cent of the total exports. In 1930 and 1933 Germany took 24.4 per cent and 22.2 per cent respectively of the total exports. Holland is the second largest customer, and in 1909-18 took 19.4 per cent, in 1930 20.9 per cent, but in 1933 only 9.8 per cent. The gain in the position of Rumania in recent years is noteworthy and shows what can be done in small markets. In the pre-war years exports to India were considerable (16.5 per cent), but with the expansion of the industry there, exports from the United Kingdom have seriously declined.

In 1924 counts up to 40's and counts between 41's and 80's accounted for 47 per cent and 38 per cent respectively of the total exports of yarn, and in 1933 the corresponding figures were 53 per cent and 33 per cent. The following table shows the exports of yarn by counts and it will be seen that the greatest decline, between 1924 and 1933, was in the exports of counts 81's to 120's.

U K EXPORTS OF YARN BY COUNTS
(Million lbs)

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Up to 40's	76.2	97.3	88.5	101.9	77.1	76.7	65.9	60.7	73.8	71.8
%	100	128	116	134	101	100	87	80	96	94
41's to 80's	61.6	66.2	58.5	72.3	66.5	66.2	50.7	52.1	51.7	45.1
%	100	108	95	117	108	108	82	85	84	73
81's to 120's	23.4	23.3	19.2	23.2	22.5	20.6	17.8	18.8	14.9	16.5
%	100	99	82	99	96	88	76	80	64	71
121's and over	1.9	2.7	2.8	3.0	3.1	3.1	2.6	1.9	1.8	1.8
%	100	142	121	153	163	163	137	100	95	95

The greater part of the yarn exported is grey, unbleached yarn (88 per cent of the total in 1933). Australia and India are the chief markets for bleached and dyed yarns.

Piece-goods exports according to countries and classes

As has been shown above, the great bulk of the cloth produced is exported. In the period 1909-18 the average exports amounted to 6,438 million yards (100 per cent), but in 1924 and 1930 had declined to 4,585.1 million yards (75.8 per cent) and 2,490.5 million yards (38.4 per cent) respectively. Since 1930 the decline has continued, although the rapidity has been to some extent arrested, and the 1932 and 1933 figures show a slight improvement over those for 1931, which was the worst year. All kinds of cloth have contributed to the general decline, but the most serious contraction has been in the exports of greys which in 1930 were only equivalent to 25.4 per cent, and in 1933 only 15 per cent of

U.K. EXPORTS OF COTTON PIECE GOODS

(Million linear yards)

	1913	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Total	7,075 3	4,585 1	4,636 7	2,922 8	4,189 1	3,968 2	3,764 8	2,490 5	1,790 2	2,802 7	2,116 5
Grey unbleached	2,357 5	1,402 3	1,803 1	1,121 6	1,197 9	993 9	954 8	546 6	289 4	356 6	357 4
Bleached	2,045.3	1,413 2	1,522 0	1,284 7	1,837 4	1,346 1	1,288 8	882 0	681 0	772 0	648 4
Printed	1,290 8	728 7	777 1	598 1	656 5	625 5	551 7	994 8	324 2	454 8	416 7
Piece dyed	1,151 4	858 0	831 8	751 8	823 7	837 6	825 7	558 9	456 1	594 2	585 2
Yarn dyed	290 4	182 9	202 7	171 6	173 6	165 1	144 3	108 3	89 7	125 1	108 8
To											
India	3,057 3	1,552 2	1,335 6	1,460 0	1,550 8	1,452 6	1,268 3	728 4	355 6	555 4	—
China & Hong Kong	716 5	320 6	191 3	193 9	116 9	205 1	209 9	69 9	95 4	143 5	—
U S A & Canada	154 9	212 5	134 3	96 6	92 6	83 1	71 3	51 9	39 3	38 3	—
Australasia	210 7	184 1	203 9	211 0	220 2	172 8	207 0	165 0	159 6	218 0	—
British West Indies	29 0	19 8	21 8	17 4	18 8	19 1	17 6	16 6	15 1	27 7	—
Ceylon & Dependencies	37 8	22 0	29 5	31 5	34 2	24 0	29 2	19 1	16 8	15 4	—
British Malaya	131 3	64 6	99 1	73 3	80 1	64 3	37 6	29 4	19 6	38 4	—
Aden & Dependencies	9 7	9 4	14 2	11 1	18 0	12 1	14 1	9 4	8 1	10 2	—
Union of S Africa	67 7	68 0	68 1	69 8	70 2	66 6	70 4	54 8	54 6	50 8	—
Nigeria	95 1	72 4	141 1	92 3	111 2	180 7	110 0	99 6	62 9	119.8	—
Irish Free State	—	20 8	21 8	26 5	29 0	27 8	27 9	26 7	26 4	28 0	—
Sweden	13 4	27 1	23 0	23 5	26 0	21 8	16 4	21 3	25 6	19 9	—
Norway	16 7	16 3	15 8	15 4	18 0	15 3	16 1	15 3	14 6	17 9	—
Denmark	16 4	29 8	29 6	30 0	30 1	24 4	27 6	27 6	29 4	35 6	—
Germany	76 4	58 9	129 0	50 2	73 6	50 2	44 2	41 6	28 4	24 9	—
Netherlands	84 3	49 8	62 5	42 5	62 8	62 2	61 3	37 1	28 2	35 4	—
Java	253 3	138 0	185 6	116 0	130 6	133 9	106 9	67 9	37 6	39 9	—
Other Dutch Posses- sions in the E Indies	51 6	24 9	43 9	31 9	36 8	37 2	35 1	16 8	8 6	12 6	—
Belgium	31 2	35 6	24 9	28 4	28 3	22 9	25 5	25 8	19 1	12 6	—
France	12 8	22 8	18 0	22.0	14 6	12 5	9 4	7 6	5 4	8 7	—
Switzerland	79 9	172 6	141 2	91 7	125 5	103 2	79 6	56 9	48 4	36 0	—
Greece	31 9	49 4	52 0	28 9	41 9	31 4	33.8	28 1	31 1	20 2	—
Egypt	266 6	222 2	265 8	138 9	178 9	143 1	169 6	130 4	78 9	90 2	—
Morocco	60 4	73 9	64 7	57 0	62 7	75 5	68 8	46 7	59 6	64 3	—
Iraq	—	—	—	—	94 5	56 3	41 4	35 4	31 9	44 4	—
Persia	40 6	19 1	35 8	17 3	20 1	19 6	14 0	10 7	8 3	20 2	—
Siam	42 2	24 4	27 0	24 4	28 6	25 9	29 4	11 3	8 4	9 6	—
Colombia	73 6	44 5	68 7	56 6	46 9	50 2	51 7	26 5	40 3	50 0	—
Chile	61 7	32 4	58 3	39.9	42 5	31 0	56 7	35 2	9 3	3 0	—
Brazil	96 5	56 1	78 8	72 2	71 9	69 9	44 7	8 9	2 3	2 8	—
Argentine	199 1	162 3	172 6	120 9	137 9	161 3	156 3	128 0	100 0	128 6	—

Of the other kinds of cloth, exports of bleached in 1930 were only 48.3 per cent of the pre-war average, of printed 32.6 per cent, of piece dyed 54.6 per cent, and of yarn dyed 40.8 per cent. About 40 per cent of the decline in total exports between 1909-13 and 1930 is accounted for by the decline in the exports of greys, while bleached and printed accounted for 27 per cent and 29 per cent respectively. The following table shows total exports, exports divided according to the different kinds of cloth, and exports divided according to the chief markets.

The following table showing the division of exports by the chief areas is given in order to summarise the more detailed figures given above, but it should also be noted that the relative importance of Europe, Central and South America, Africa and Australia has increased considerably over the last ten years, while the absolute decline in most of the markets in these areas has been less than in the Eastern markets.

U K. EXPORTS OF COTTON PIECE GOODS, 1924, 1980 AND 1983

(Per Cent by Continents and Areas)

	1924	1980	1983
Europe .	16 2	15 7	18 2
Near East	8 8	9 4	6 8
India and Ceylon .	87 8	84 2	24 6
Far East .	12 0	7 8	5 7
North America	5 8	8 4	4 5
Central and South America	9 1	11 6	15 4
Africa	5 9	11 6	15 3
Australasia .	4 4	6 8	9 5
	100 0	100 0	100 0

India

It will be seen from the above table that there have been serious declines in the exports to most of the markets mentioned. The greatest decline has been in exports to India, which fell from 3,057 3 million yards in 1918 to 1,552 2 million yards in 1924, and to 1,452 6 million yards in 1928 (a decrease of 52 per cent on the 1918 figures). The decline in exports to India between 1918 and 1928 accounted for 51 per cent of the total decline in exports. In the period 1910/11 to 1913/14 British imports represented approximately 57 per cent of the available supply (i.e. domestic production plus imports, no allowance being made for re-exports or Indian exports which were comparatively negligible.) During the post-war years imports from the United Kingdom as a percentage of the available supply have tended to fall, and between 1924 and 1980—a period during which the total available supply was tending to increase—imports from this country fell from 43 per cent to 21 per cent of the total quantity supplied to the Indian market. During this same period Indian production increased from 1,841 million yards to 2,494 million yards, while Japanese imports increased from 146 million yards to 890 million yards. Thus the increase in Indian production (allowing for the increase in the total available supply) accounted for approximately 70 per cent of this country's loss, while Japan accounted for more than 25 per cent. The following table shows the total supply of cotton cloth in the Indian market, with domestic production, imports from the United Kingdom and Japan worked out as percentages of the quantity available for consumption.

BRITISH INDIA AVAILABLE SUPPLY OF COTTON CLOTH

(Million yards)

	Imports	Production*	Available Supply	Imports as percentage of available supply	Domestic Production as percentage of available supply	Imports from U K	Imports from U K as percentage of available supply	Imports from Japan	Imports from Japan as percentage of available supply
1924	1,705	1,841	3,546	48	52	1,508	43	146	4
1925	1,640	1,909	3,549	46	54	1,379	39	201	6
1926	1,784	2,226	4,010	44	56	1,479	37	232	6
1927	1,965	2,372	4,337	45	55	1,533	35	332	8
1928	1,881	1,860	3,741	51	49	1,456	39	307	8
1929	1,910	2,857	4,267	45	55	1,276	30	521	12
1930	1,258	2,494	3,747	33	66	797	21	390	10
1981	741	2,900	3,641	20	80	356	10	336	9
1982	1,152	3,203	4,355	27	73	551	13	552	13
1983	870	3,550	4,420	18	82	456	10	379	9

* Mill production only

An interesting point indicated by the above figures is that the consumption of piece goods does not appear to have increased appreciably between, say, 1927 and 1933. This must be treated with reserve as little is known about the hand loom output, and there are other complicating factors, but if, as is probable, it is correct, it must be ascribed to several causes partly to the low prices of agricultural commodities and restricted purchasing power of the native population, and partly to competition from rayon. It is however highly probable that improved marketing could greatly increase total consumption.

All kinds of cloth have contributed to the decline in exports from the United Kingdom to India. The greatest percentage and absolute decline has been in the exports of greys, which declined from 1,285.8 million yards in 1909-13 to 730.4 million yards in 1924, 247 million yards in 1930, and 88.8 million yards in 1932. The following table shows the exports of cotton piece goods from the United Kingdom to India by types. It will be seen that whereas greys formerly accounted for the largest proportion of the total exports (51 per cent in 1909-13, 47 per cent in 1924, and 84 per cent in 1930), bleached are now much the most important class (49 per cent in 1932).

U K EXPORTS OF PIECE GOODS TO INDIA BY TYPES
(Million linear yards)

	Av 1909- 1913	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933*
Total	2,508.3	1,552.2	1,385.6	1,460.0	1,550.8	1,452.6	1,268.3	728.4	355.6	555.4	445.3
Grey	1,285.8	730.4	597.0	664.9	678.7	551.0	526.8	247.0	55.8	88.8	104.5
Bleached	680.3	490.5	442.9	472.9	511.3	536.5	458.7	296.2	196.1	272.6	200.9
Printed	367.7	184.4	177.7	172.7	205.2	198.2	149.3	96.0	53.6	98.8	
Piece dyed	204.2	137.8	109.9	141.5	148.5	157.6	127.9	80.7	47.6	89.0	
Yarn dyed	20.8	9.1	8.1	8.0	7.1	9.3	10.7	9.2	2.5	6.2	

* Estimated from Indian Returns

The question now remains to be answered as to whether there is much hope of Lancashire increasing its trade with India in the future. In view of the fact that the Indian industry has tended to expand too rapidly and of the determination of Indian producers to maintain their present hold on the domestic market (it will have been seen from the table showing the available supply of cotton in the Indian market that the domestic industry produced over 82 per cent of the available supply in 1933) it cannot be held that there is much possibility of Lancashire substantially increasing her sales to India. Moreover, unless the growth of the Indian industry is controlled in the future (see page 127) there is the distinct possibility of Lancashire's trade being further reduced. Another factor which is tending to restrict imports from Lancashire is that India has to maintain a favourable balance of payments in order to meet her debt obligations contracted in the United Kingdom. This favourable balance of payments can be maintained either by an increase in exports or by a reduction in imports. As an increase in exports is at present difficult to attain, India is compelled to resort to a reduction in imports, a policy which, of course, meets with the complete approval of the Indian cotton manufacturers. In view of these facts, then, the greater part of the decline in exports must be regarded as permanently lost. In spite of this, however, it would definitely be wrong to regard the situation as hopeless, since if Lancashire had a really first-class sales organisation in India, and was able to increase her efficiency and reduce her costs at home, the position might be very different, particularly in view of the high costs of the Indian mills, especially at Bombay. In this connection the fact that exports of bleached, dyed and printed cloths have held up better than those of greys is a good sign. Lancashire must concentrate on goods with the highest value per unit.

China

In 1909-13 the United Kingdom exported the yearly average of 587.3 million yards (9 per cent of the total exports) to China and Hong Kong. In 1924 and 1930 exports had declined to 320.6 million yards (7 per cent) and 69.9 million yards (3 per cent) respectively. Between 1909-13 and 1924 China accounted for nearly 13 per cent of the total decline in the exports of piece goods from the United Kingdom. The decrease in sales to China has been due both to increased Japanese competition and also to the increased production in China itself. As is shown on page 124, the production of cloth in Chinese mills has increased from 45 million yards in 1915 to 590 million yards in 1929. Lancashire has been steadily losing ground to Japan in the Chinese market, for whereas in 1910-13 the United Kingdom supplied 59.5 per cent of the total imports of cotton piece goods (by value) and Japan 15 per cent, in 1924 the United Kingdom supplied 35.6 per cent and Japan 51.3 per cent. In 1929 the corresponding figures were 21.8 per cent and 66.5 per cent. Japan has increased her exports to China and Hong Kong from 20 million yen in 1913 to 157.3 million yen in 1924 and 176 million yen in 1928. If account is taken of the change in prices, Japanese exports in 1924 and 1928 were 836 and 518 respectively as against 100 in 1913.

All kinds of cloth have contributed to the general decline in exports from the United Kingdom to China. As in the case of India, the greatest decline, both absolute and percentage, has been in

greys, which have dropped from 217 million yards in 1909-18 (average) to 24 million yards in 1928. Over the same period bleached declined from 206 million yards to 98 million yards, printed from 29 million yards to 11 million yards, piece dyed from 180 million yards to 78 million yards and yarn dyed from 5 million yards to 4 million yards. In view of the tendency for the Chinese industry to expand, and of the growing strength of the Japanese in Manchukuo and North China, there is little possibility of Lancashire being able to recapture much of her lost trade. Indeed, there are even some grounds for fearing that China in the rather more distant future may make serious inroads upon Lancashire's trade in the export markets of the world owing to her relatively low costs of production, her favourable situation as far as eastern markets are concerned, and the tendency for her cotton industry to expand.

Dutch East Indies

Japanese competition has been mainly responsible for the decline of British exports to markets other than China and India. In 1918 the value of Japanese exports to the Dutch East Indies was 280,000 yen, in 1924 87.2 million yen, and in 1928 89 million yen. If these values are reduced to 1918 prices we get the following result, Japanese exports in 1924 were equivalent to 15.9 million yen, and in 1928 to 28 million yen. British exports to this market declined from 804.9 million yards in 1918 to 162.9 million yards in 1924 and 171.1 million yards in 1928. Since then there has been an even more catastrophic decline to 52.5 million yards in 1932. At first, Japanese expansion was at the expense of Holland, but since 1925 the United Kingdom has been the chief loser. Moreover, competition from Holland has also been responsible for some of this country's loss, particularly in the trade in bleached goods. As there is considerable agitation for an increase in import duties on cloth not of Dutch origin, and the possibility of the Dutch manufacturers building factories in Java (see page 184) there is not much likelihood of Lancashire being able to recapture much of her lost trade in this market.

Malaya

Another important market to which British exports have declined and Japanese exports increased is Malaya. Exports from the United Kingdom declined from 181.3 million yards in 1918 to 64.6 million yards in 1924. Subsequently, however, they increased somewhat and remained at a rather higher level until 1930 when the depression in the mining and plantation industries, combined with more serious Japanese competition, brought about a big drop to 38.4 million in 1932. The value of Japanese exports increased from 250,000 yen in 1918 to 4.9 million yen in 1924 (or revalued at 1918 prices, 2.1 million yen), and in 1927 to 10 million yen (6.1 million yen). In 1924 British imports into Malaya (66.8 million yards) exceeded Japanese (16.2 million yards). But in 1930 Japanese imports (56.8 million yards) exceeded British (32.1 million yards). China also does a considerable trade with Malaya, exports in 1924 amounting to 18.1 million yards, and in 1930 to 14 million yards.

European Countries

Switzerland is the largest market in Europe for British cotton piece goods, but as many of the goods consigned there are redistributed it is impossible to state what Switzerland's actual consumption of cotton goods from this country actually is. Holland in the pre-war years was an important customer of Lancashire, but during the post-war years imports from the United Kingdom declined very seriously. In 1918 the United Kingdom exported 84.8 million yards to the Netherlands, but in 1924 this had declined to 49.8 million yards, and in 1930 to 37.1 million yards. Exports to Belgium also declined, from 31.2 million yards in 1918 and 35.6 million yards in 1924, to 25.8 million yards in 1930. The bulk of the exports to the former country are greys, intended, after finishing, for re-shipment to the Dutch East Indies, but owing to the severe Japanese competition encountered in the East, this trade has been seriously reduced. Apart from this reason, the general cause of the decline of exports from the United Kingdom to both Belgium and Holland has been an extension of the weaving industry there. In 1914 these two countries together possessed only 64,000 looms, in 1924 74,000 looms, and in 1928 105,000 looms.

Exports to France and Germany in the post-war years have fallen short of those in pre-war years. Germany in 1918 took 76.4 million yards of cotton piece goods, in 1924 58.9 million yards, and in 1930 41.6 million yards. In this market the decline can also be traced to a general expansion of the weaving industry, for the number of looms increased from 190,000 in 1920 to 250,000 in 1928, and to competition from Czechoslovakia, which increased its exports to Germany from approximately 7 million yards in 1924 to 31 million yards in 1928. Exports to France from the United Kingdom in 1924 totalled 22.8 million yards (as against 12.8 million yards in 1918), but since then there has been a steady decline, and in 1930 they amounted to 7.6 million yards. British exports to this country have

suffered from Belgian and Swiss competition, and also from quota restrictions. It will be noticed that exports to Scandinavian countries have in general remained above the pre-war level, and have held up relatively well throughout the depression. This strengthens the impression that instead of expecting to dispose of the bulk of its exports in a few big markets, Lancashire has got to evolve a selling organisation which can concentrate systematically on a large number of smaller markets, particularly those where favourable trade agreements can be made.

South America

Exports to South American countries have also tended to decline. The Argentine in 1913 took 199.1 million yards, in 1924 162.3 million yards, and in 1930 128 million yards. There are two distinct markets in the Argentine, the town market where good quality cloth is demanded, and the agricultural market which takes in general the cheaper qualities. The decline in imports has come largely from the lower quality piece goods, and this market has undoubtedly been supplied by an expanding domestic industry. Moreover, new competitors—Japan, Italy and the U.S.A.—have been successful in holding their share of the trade which they gained during the war.

The greatest decline, however, in exports to South American countries has been in those to Brazil, which in 1913 took 96.5 million yards from the United Kingdom, in 1924 this had declined to 56.1 million yards, in 1930 to 8.9 million yards. Very little of this decline has been due to competition from other countries, and it has been mainly caused by an expansion of the domestic industry, which is now capable of supplying more than 80 per cent of the local consumption. Reductions have also taken place in the exports to Chile and Colombia, exports to the former in 1913 amounted to 61.7 million yards, and in 1930 35.2 million yards, falling, partly owing to exchange restrictions, to 3 million yards in 1932, exports to the latter in 1913 amounted to 73.6 million yards and in 1930 to 26.5 million yards. There has since, however, been a remarkable recovery to 50 million yards in 1932.

North America

Exports to the U.S.A. and Canada have declined from 212.5 million yards in 1924 to 51.9 million yards in 1930. In the United States market there is little prospect of any increase in imports from the United Kingdom, owing to the fact that the domestic industry is already highly developed (see pages 128-131), and is protected by high tariffs. British exports to the U.S. have declined from 150.7 million square yards in 1924 to 8.5 million square yards in 1932. At the same time it should be noted that imports from Switzerland have tended to increase (5.2 million square yards in 1924 and 10.8 million square yards in 1932), and there are probably definite openings in the case of high-class goods and specialties.

Total imports into Canada in 1924 totalled 89.1 million yards and 92.8 million yards in 1930. The United Kingdom has lost ground seriously in this market, for her exports declined from 52.8 million yards in 1924 (59 per cent of the total) to 38.1 million yards in 1930 (36 per cent). During the same period imports from the U.S. increased from 33.6 million yards in 1924 to 55.7 million yards in 1930, nor was much help obtained from the Ottawa Conference. Owing to the development of the domestic industry there is not much hope of Lancashire increasing her trade in this market, although, as in the case of the U.S., there is probably room for high-class goods.

Africa

Egypt in 1913 took 266.6 million yards of British cotton piece goods. But since 1924 there has been a serious decline in British exports to this market, from 222.2 million yards to 130.4 million yards in 1930. Imports from Japan have increased from 9.4 million square yards in 1924 to 53.7 million square yards in 1931, and although British exports rallied somewhat in 1932, competition from Japan has since been very intense. Competition from Italy has also tended to increase, and Italian exports to Egypt grew from 35.4 million square yards in 1924 to 47.6 million square yards in 1929. The reasons which have been advanced for this decline in Lancashire's trade are

- (1) The price of Lancashire goods is too high
- (2) The pattern does not correspond to the taste of the Egyptian consumer
- (3) The method of marketing Lancashire goods is inadequate when compared with the methods employed by the Japanese industry

In recent years Africa has become a market of increasing importance to this country, and any expansion of British trade depends largely on the extent to which Lancashire can cater for the requirements of the native. Recently, however, severe competition from Japan has been felt in these markets, on which the Japanese appear to be making more or less an organised attack, and unless

effective steps are taken immediately towards improved marketing, Lancashire's trade will be further reduced. The Japanese have already succeeded in reducing British imports into British East Africa, and, owing to their effective marketing, it looks as if they would secure the larger share of the increasing demand. In 1925 the total imports of cotton goods into this market were 64.4 million yards, of which the United Kingdom supplied 16.92 million yards (26 per cent) and Japan 17.1 million yards (27 per cent), in 1932 imports totalled 76.88 million yards, of which 52.06 million yards (68 per cent) were supplied by Japan and 10.29 million yards (14 per cent) by the United Kingdom. The failure of the British industry to maintain its position in this relatively undeveloped, expanding and Empire market is really more serious than the inevitable contraction of exports to a market like, for instance, China.

Japan first captured the market for grey shirtings and later that for coloured goods. Undoubtedly Japanese success in this market is due to her selling organisation and to her ability to produce types of cloth suitable to local taste. British West Africa has also become a market of increasing importance to this country. Up to 1930 imports from Lancashire accounted for approximately 90 per cent of the total imports of cotton goods into Gambia, Sierra Leone, Gold Coast and Nigeria, the last of which is the largest individual market. Bleached and printed goods accounted for more than half of the total imports, and until comparatively recently it could be maintained that Lancashire's position in this market was unassailable. In recent months, however, competition from Japan has assumed alarming proportions, and unless steps are taken Lancashire will undoubtedly lose these valuable connections. As is argued below, prohibition of Japanese imports would render little service in the long run to Lancashire, and the West African markets can only be retained by this country if Lancashire goods are handled by an efficient marketing organisation catering for the requirements of the native population.

Japanese competition and the negotiations between Great Britain, Japan and India

It is well-known that the increase in Japanese competition has been largely responsible for the decline in the exports of cotton piece goods from the United Kingdom to the greater number of its markets. During the last two years Japanese competition has been intensified, especially in Eastern markets, owing to the depreciation of the yen (see page 121). It must not be thought, however, that the increase in Japanese exports is solely due to currency manipulation, as it was very marked prior to 1932, and to a large extent it is undoubtedly due to the efficiency of the industry, and particularly of its marketing organisations. This competition has seriously affected the cotton industries in other countries besides the United Kingdom.

It was with the object of preventing further inroads from Japanese competition that the Government of India denounced the trade treaty of 1904, and the British Government gave notice to terminate the Most Favoured Nation agreement with Japan in the West African Dependencies. Further drastic tariff action has been strongly agitated for in recent months, for instance, by propaganda organisations such as the Cotton Trade League, and also in Parliament by a group of Lancashire M.P.s, led by Major Proctor of Accrington. There are, in fact, two schools of thought on the matter—one advocating tariff action and the other the conclusion of an agreement with Japan. As regards the former it should be noted that until the conclusion of the Indo-Japanese agreement at the beginning of 1934, Lancashire had a preference of 50 per cent over Japan in India, and still has one of 25 per cent, with a possible increase to 80 per cent by reduction in the tariff on British cotton goods. It is the Indian mills, making low-grade fabrics, which are primarily and directly affected by Japanese competition, and Lancashire, having long ago lost the greater part of this trade, will only keep her better-class trade so long as the Indian mills are not greatly interested in it. Moreover, in all the Dominions the United Kingdom has very little even indirect influence on tariff matters, and a policy such as the one proposed would be difficult to bring into effect. The same applies to certain British possessions like Ceylon, and probably nowhere could the pressure of cheap imports be withstood for long. While some increased preferences in certain British possessions are desirable and attainable, a directly anti-Japanese tariff policy could only be of limited benefit at the best, and might do much more harm than good, at any rate so long as Japan is in a stronger competitive position than Lancashire.

In some ways the conclusion of an agreement with Japan similarly offers marked disadvantages. It can be argued with some factual support that, favoured by somewhat fortuitous circumstances, Japan has reached, or is nearing, a zenith in her meteoric progress as an exporter of cotton goods, and that with the end of the advantages reaped through currency depreciation, combined with potential internal troubles arising from a now long-continued policy of taxing home consumption on behalf of exports, and strong tariff opposition in other countries, a decline in her cotton industry may be anticipated. Or again, it is widely held that Lancashire should fight and not talk, and that an agreement made now might be very disadvantageous in a couple of years' time, besides being psycho-

logically discouraging from effort, if meanwhile the necessary reorganisation were effected. Apart from this it has frequently been pointed out that it is doubtful how far the Japanese would really be willing to come to an agreement, and recent events with regard to the Anglo-Japanese negotiations have shown this doubt to be well founded.

Nevertheless, the tariff restrictions referred to caused great anxiety to the Japanese industry, and jointly with the pressure of certain interests in Lancashire on the British Government to introduce drastic and anti-Japanese tariff action, were responsible for the establishment of two conferences—the Simla Conference between the Governments of India and Japan to discuss the terms of a new trade agreement, and the (nominally) tripartite conferences between representatives of the British, Indian and Japanese industries to discuss trade in common markets, one part of which was the Manchester and London discussions on Anglo-Japanese competition in world markets.

The Simla Conference resulted in the Indo-Japanese agreement reached early this year, which reduced the duty on Japanese imports and linked up their volume with Japanese purchases of Indian cotton, but after long delays the Anglo-Japanese discussions failed to reach an agreement. When the question as to what concessions might be expected from Japan is considered, the following points should be borne in mind.

- (1) The distribution of Lancashire and Japanese trade between countries within the British Empire and countries outside.
- (2) The attitude of consumers.
- (3) Japan as a market for British commodities other than cotton manufactures.
- (4) The political relationships between Japan and Great Britain.

(1) Lancashire exports approximately 55 per cent of her total exports to countries within the British Empire. Japan, as far as can be ascertained from trade returns, exported to countries within the British Empire in 1928, 1930 and 1932, approximately 570 million square yards, 790 million square yards, and 1,200 million square yards respectively. These exports were equivalent to 16 per cent, 32 per cent and 52 per cent of the total exports of piece goods from the United Kingdom in the same years. If—and this is a big assumption—it is possible to exclude Japanese imports from the British Empire, the Japanese goods so excluded would undoubtedly be diverted to outside markets over which this country has no control whatever as far as tariffs are concerned.

For instance, the Japanese piece goods excluded from the Indian markets under the terms of the new trade agreement will be marketed elsewhere, and undoubtedly Lancashire will have to face still keener competition from Japan in markets other than India. It is significant that in the past, tariff action against Japan in one country has always been followed by an organised marketing drive in another—an attack only made possible by the large Japanese marketing concerns referred to on page 120. This has usually come back on Lancashire. Thus after the Indian duties on Japanese cloth were raised to 50 per cent in August 1932 and again to 75 per cent in June 1933, Japan attacked the Dutch East Indies. Dutch cotton manufacturers were unable to get their Government to take tariff action and were forced to concentrate increasingly on their home market—one of Lancashire's best Continental markets—with the inevitable results.

It will thus be seen that Japan is in a very strong position, and the loss to her through inability to reach an agreement with England will be negligible. In view of this strong position it is not surprising that the Japanese were unwilling to make any great concession. As pointed out on p. 16, however, in certain other industries Japan's position is relatively less favourable. It was felt, therefore, in some quarters, that when negotiations between the Governments of the two countries were started, it would be possible to obtain better terms, and this view was strengthened by the fact that on account of recent development in Manchukuo there are important political concessions which Japan is anxious to secure from this country. In this connection the complete lack of interlocking between British foreign policy and British industrial policy, particularly on the administrative side, is very striking.

The following table shows the exports of piece goods from the United Kingdom to foreign countries and to the British Empire for the years 1928 to 1932. It is seen that the only change of note over this period besides the decline of 42 per cent in total exports already referred to, is the increase in the relative importance of the Crown Colonies and corresponding decrease in that of the Dominions.

U K. EXPORTS OF PIECE GOODS TO FOREIGN COUNTRIES AND TO THE BRITISH EMPIRE
(Million linear yards)

	1928	1929	1930	1931	1932	Per Cent 1928	1932
Total	8,968	8,765	2,891	1,790	2,308	100	100
Total to Foreign Countries	1,809	1,748	1,190	921	1,081	46	45
Total to British Countries .	2,159	2,017	1,300	869	1,271	54	55
Total to Dominions .	1,764	1,612	1,008	624	880	44	38
Total to Crown Colonies	895	405	292	245	891	10	17

(2) It has been pointed out above that this country would meet with considerable difficulties in securing exclusion, if attempted, of Japanese goods from Empire markets. Ceylon has already refused to give British cotton goods an increased preference, and undoubtedly this same attitude would be adopted by the other colonies if any attempt were made to reduce their real purchasing power by excluding cheap cotton goods to which they have become accustomed. Holland has also experienced this difficulty with her own colonies (see page 184).

(3) From the table given below it will be seen that Japan has in the past, at any rate, purchased more from the United Kingdom than the United Kingdom has purchased from Japan, although it will be noticed that in 1931 there was a balance in favour of Japan. If the cost of transport were added to the value of the 1931 exports to Japan, the balance would undoubtedly be in favour of this country. Should the British Government succeed in excluding Japanese goods from Empire markets (an assumption which as already pointed out is not necessarily justified) the Japanese would certainly tend to reduce their purchases of British goods. This would, of course, injure British industries other than cotton, and in view of the pressure which these would bring to bear, it is doubtful how far any government, quite apart from dictates of foreign policy which would further complicate the issue, would be willing to put into practice and continue in operation a policy which would very easily lead to a complete rupture of Anglo-Japanese trade relationships. This argument, however, carries less weight, in view first of the probable continued decline of British exports to Japan, following increased industrialisation, and secondly of the firm attitude taken up by the British Government in trade negotiations with other countries, e.g. France. The following table shows the total U.K. trade with Japan.

U K. TOTAL TRADE WITH JAPAN
(£,000)

	Total Value of Goods consigned from Japan* and retained in the U.K.	Total Value of Exports of British Manufactures to Japan*
1918	8,818	14,530
1920	5,950	26,098
1921	7,547	21,434
1922	7,464	24,187
1923	5,906	26,819
1924	6,512	26,705
1925	6,862	16,237
1926	6,467	13,904
1927	7,324	15,150
1928	7,866	14,536
1929	8,197	13,435
1930	7,163	8,229
1931	6,305	6,187
1932	3,630	5,733
1933	5,340	—

* Including Formosa and Japanese leased territories in China

(4) A rupture or serious dislocation in Anglo-Japanese trade relationships would lead to change in the political orientation of the two countries to one another. In view of the position with regard to the Manchukuo dispute, such a change at the present time would probably be unwelcome at the Foreign Office.

Taking into consideration the various factors mentioned above, Japan was obviously in the stronger position in her negotiations with this country. At the best no great concession could be expected from her, and it was even possible that under threat of increased competition Japan might have tried to force on the British representatives an agreement detrimental to Lancashire's interests. Nevertheless, an agreement along the best lines that could reasonably be expected would probably have been better than no agreement at all, provided always that Lancashire were not restricted for any long period and could be persuaded to look on such an agreement as a breathing space in which to effect internal reorganisation and not as an arrested decline at a permanent stabilisation level.

After a long delay, due partly to awaiting the return of the Clare-Lees delegation from India, the Japanese delegation in the U.K., under the leadership of Mr. Okada, which arrived in September 1933, were authorised on January 31st, 1934, by the industries concerned to open negotiations. Lancashire was represented by a Special Committee on Japanese Competition, under the chairmanship of Sir Thomas Barlow.

The attitude taken up by the Japanese delegation was closely controlled by a special committee of the Japanese Cotton Spinners' Association in Osaka, and by a joint committee of all cotton interests concerned in Tokyo, and the former started by laying down the following points as representing their view of the basis for negotiations: (i) last year's exports to be taken as the basis, (ii) cotton and rayon to be treated separately, (iii) negotiations not to include markets other than the Crown Colonies.

The last point was perhaps the most important, for it would otherwise have implied the necessity for export control by the Japanese industry. Such control is, however, very near being an established fact, for the Japanese Ministries of Finance and Commerce recently agreed on an export control bill, which had for some time been advocated on various grounds. Among these were unnecessary competition among exporters through exchange dumping and price-cutting, the obligations imposed by trade agreements such as the Indo-Japanese agreement, the adjustment of trade balances, and the restriction of individual on behalf of national interests along the lines advocated by Fascism in Europe.

The British delegation adhered to their original principle that world markets must be discussed as a whole, as against the Japanese argument that since the British Dominions are self-governing they must negotiate with them direct, and that as regards the rest of the world they must enter into bilateral negotiations with each separate nation in order to obtain equivalent concessions.

One of the main points in the Lancashire case was that, India apart, her losses in Empire markets are a much less serious problem than those in foreign markets, and that the Crown Colonies only represent about 10 per cent of the total exports.

The following table gives the relative export figures:

EXPORTS OF COTTON PIECE GOODS
(million square yards)

	1928	1929	1930	1931	1932	Average 1928-31	Per Cent 1928-31
1 Japan							
All countries	1,419	1,791	1,572	1,414	2,032	1,549	100
British countries	482	757	681	671	987	635	41
India	858	581	404	404	645	437	28
Dominions	24	29	39	61	74	38	2
Others	100	147	188	206	268	160	10
Foreign countries	986	1,034	941	748	1,045	914	59
2 United Kingdom							
All countries	8,866	8,672	2,407	1,716	2,198	2,915	100
British countries	2,204	2,074	1,811	869	1,258	1,618	55
India	1,542	1,374	778	389	599	1,021	35
Dominions	814	341	275	259	314	297	10
Others	348	359	258	215	345	295	10
Foreign countries	1,662	1,598	1,096	858	940	1,302	45

Moreover, in any bilateral agreements with foreign countries, the United Kingdom is in a much stronger position than Japan, and with the exception of China and Siam, all the principal cotton

goods importing countries export much more to the United Kingdom than they do to Japan, the imports of the United Kingdom representing 16 per cent of the world total import trade, against 8 per cent in the case of Japan

It must, however, not be forgotten that the Japanese themselves were very divided as to the advantages which might accrue from an agreement. The Government were understood to be favourably inclined, but the Osaka Spinners' Committee already referred to were strongly opposed to any agreement, and were led in this respect by Mr Tsuda, managing director of the Kanegafuchi Spinning Company, one of the largest concerns of its kind.

After the breakdown of the negotiations the British Government approached the Japanese Government with a view to the conclusion of a general trade agreement between the two countries. Although in April the Japanese Government stated its willingness to negotiate such an agreement, it did not put forward any new suggestions in this connection. On May 7th, 1934, Mr Runciman announced that since the Japanese Government were not prepared to alter materially their original attitude, the British Government would be compelled to adopt measures to protect British trade from Japanese competition. In so far as these measures apply to cotton goods they are to take the form of quotas on foreign imports into the Colonial markets, based on the average imports of the years 1927-31 and coming into force retrospectively from May 7th in order to prevent forestalling. Since these quotas will apply to all countries, there is no question of discriminatory action against Japan nor of denouncing the Anglo-Japanese trade treaty. The quotas will, however, in fact affect Japan more than any other country, in view of the abnormal growth of Japanese exports to the colonial markets since 1931. It is estimated that the total reduction of Japanese imports into the colonies will be of the order of 100,000,000 square yards. The following table shows Japanese imports into three of the chief markets concerned for 1933 compared with the average for 1927-31.

JAPANESE IMPORTS INTO BRITISH COLONIES
(million square yards)

	1927-31	1933
Ceylon	11.7	41.4
British Malaya	39.9	99.6
British East Africa	28.6	65.2

The effectiveness of the quota weapon is greatly doubted in many quarters. In some Government circles it is held that ultimately the only successful solution of the problem of Japanese competition would be an agreement between Great Britain and Japan, and the reduction of Japanese imports into the colonial markets will obviously result in more intense competition in other markets. Moreover under the Congo Basin treaties the quota cannot be applied in parts of East Africa. In West Africa tariffs are to be substituted for quotas.

The Japanese attitude to the quota action is not yet clear, probably, to a certain extent, because public opinion is more interested in the negotiations with Holland over the Dutch East Indies market. Japanese exports to the British colonies comprised 16 per cent of the total exports in 1933, and it is thought that the effects of the quota will very soon be offset by expanding markets such as South America and Manchukuo. It is probable also that Japan is waiting to hear what action is to be taken with regard to imports other than cotton.

The earlier negotiations between India and Japan were necessarily protracted, and the split which at first developed between the Indian growers and the Indian industrialists, encouraged the Japanese to put forward proposals which were unacceptable to the latter. It should be remembered that these discussions formed one part—the other being the Anglo-Japanese discussions referred to above—of the originally-intended tripartite discussions between representatives of the British, Indian and Japanese cotton and rayon industries with the object of reaching an agreement as to the division of trade in the Indian and other markets. The negotiations between the Indian and Japanese official delegates for the arrangement of a new Indo-Japanese trade agreement were quite distinct from the textile trades discussions.

In the course of the Indo-Japanese negotiations consideration from the first was given to the possibility of a reduction of the Indian duties in exchange for a quota restriction of imports of Japanese cloth. The original Indian proposal was that the duty should be reduced from 75 per cent to 62 per cent, and that imports of Japanese cloth should be restricted to 410 million yards per annum (the average of the last three years) while the Japanese wanted the duty to be reduced to 41 per cent and the quota to be 579 million yards (the figure for 1932/33). In the early stages of the negotiations

there was evidence of wide divergencies of opinion between the different Indian interests concerned in the negotiations, and both within the Indian and Japanese delegations there appear to have been differences of opinion as to whether or not the import quota for Japanese cloth should be made conditional on a specified importation of Indian cotton

On October 11th, 1933, however, an agreement was concluded between Indian millowners, cotton growers and handloom representatives on the following principles

- (1) That the mills would not manufacture cloth of counts below No 11
- (2) That the Government should be asked to establish an excise tax on yarn spun by mills for sale
- (3) That Japan's admittance to the Indian textiles market on a quota basis was to be made dependent on her willingness to give a guarantee to purchase a minimum quantity of Indian cotton during a period of years.

The Osaka millowners indicated that they would prefer to leave the question of the purchase of Indian cotton on the basis of a gentlemen's agreement, under which Japan would remain the main purchaser of Indian cotton so far as future market conditions should permit. But in view of the agreement concluded between the Indian manufacturers and growers, this view if persisted in would undoubtedly have resulted in a deadlock at the conference. At the end of October 1933, therefore, after adjournment of the discussions from Simla to New Delhi, the principle of linking up India's imports of Japanese cloth with Japan's imports of Indian cotton was accepted. Even after this agreement on basic principle, however, there still remained to be settled the quantity of the Japanese purchase of Indian cotton and the import quota for Japanese piece goods.

It was ultimately agreed at the beginning of January 1934 that Japan should be allowed to import into India 125 million yards of piece goods without any obligation to buy Indian raw cotton, but she must buy 1 million bales of cotton in exchange for 325 million yards of piece goods.

The maximum was fixed at 400 million yards in return for the purchase of 1.5 million bales. Piece goods are divided into four categories: (i) 45 per cent grey, (ii) 34 per cent coloured, (iii) 13 per cent bordered grey, and (iv) 8 per cent bleached. Variation is to be allowed to the extent of 10 per cent of categories (i) and (ii), and of 20 per cent each of categories (iii) and (iv), provided the total quota is not exceeded. It was further agreed that the duty on Japanese piece goods should be 50 per cent, which will vary according to the fluctuations of the rupee-yen exchange. The agreement was brought into operation as from January 8th, and at the same time the Japanese boycott of Indian cotton, which had been growing less pronounced for some time, was officially abandoned. The agreement is to remain in force until March, 1937.

For purposes of comparison, the following table gives the Indian exports of cotton to Japan and the imports of Japanese cloth.

Fiscal Year	Indian Cotton Exports to Japan ('000 bales)	Indian Imports of Japanese Cloth (Million yards)
1923/24	1,722	128
1924/25	1,923	155
1925/26	2,084	217
1926/27	1,842	244
1927/28	1,285	323
1928/29	1,610	357
1929/30	1,640	562
1930/31	1,686	321
1931/32	1,080	340
1932/33	1,085	579
Average 1923/24—1932/33	1,591	322

The following figures show the division of Indian imports of Japanese cloth by classes in the last three years.

	1980/81	1981/82	1982/83
Total Imports	821	840	579
Unbleached			
Million yards	218	185	244
Per cent of total	68	54	42
Bleached			
Million yards	28	60	120
Per cent of total	9	17	21
Coloured, printed and dyed			
Million yards	74	95	214
Per cent of total	23	28	37

It is very important from Lancashire's point of view to note that the proportion of finished cloth has been rapidly increasing over the last three years

In view of the improvement which had followed in Lancashire since the Indian tariff on Japanese goods was raised from 50 per cent to 75 per cent, this change is seen to be of very great importance to the British industry. The agreement has been considerably criticised from all sides as far as the industries themselves are concerned, but this is to a large extent by way of pushing responsibility on to their Governments, and moderate opinion both in India and Japan supported the terms. Nevertheless, the Osaka industrialists could find no words strong enough in condemning the policy of their own Government which brought about the agreement, and let it be known that in their view the industrialists could have forced, through the boycott, better terms than the Government succeeded in obtaining diplomatically. It was also emphasised that owing to the quota restriction regarding the division of imports by classes, Japan would probably find it impossible to reach ever her full quota.

In Lancashire it was held that owing to the fact that the British preference in India is offset by the Japanese currency depreciation, the benefits of the agreement from their point of view depend mainly on how the clause linking the duty with the rate of exchange is operated. It was also pointed out that the agreement provides for a curtailment of about 200 million yards in the Japanese imports compared with their 1983 level, but that it would be far from correct to assume that Lancashire will get more than a minor share of this since (a) the Indian mills are making rapid strides in the manufacture of higher class cloths and will probably exert every effort to obtain the bulk of the new demand; (b) there are other foreign countries to be reckoned with in the import field, since Japan now has Most Favoured Nation treatment again.

Finally, the Indian millowners, particularly at Bombay, would have much preferred the continuation of the 75 per cent duty, and were, of course, only forced to accept the reduction owing to their Government's pressure in its desire to end the Japanese boycott of Indian cotton.

Although less was heard of the negotiations in October 1983 between the Lancashire delegation under the leadership of Sir W. Clare Lees and the Indian representatives headed by Mr. H. P. Mody, chairman of the Bombay Millowners' Association, an agreement on a number of points was reached between the Lancashire and the Bombay millowners in spite of opposition from the Ahmedabad millowners. Lancashire officially recognised for the first time that the Indian industry was entitled for its progressive development to a reasonable degree of protection against imports from the United Kingdom, and in return the Indian millowners agreed to the principle that their industry would ask in present circumstances for lower protection against the United Kingdom than against foreign countries. The agreement also provided that the duty on British cotton yarns may be 5 per cent ad valorem, with a minimum specific duty of 1½ annas per lb, and that if and when the revenue position of the country should make it possible to remove the general surcharge on all imports imposed in October 1981, the Indian cotton industry would not make fresh proposals with regard to the duties applicable to United Kingdom imports of cotton piece goods. Certain provisions were also included with regard to artificial silk piece goods and mixtures. Lancashire, on her part, agreed to encourage the use of Indian cotton, and two Cotton Commissioners were subsequently appointed with this object; while any advantages which may be secured in foreign markets for British goods are to be extended to Indian goods—so that, for example, in markets in which India has no independent quota, she should share in the quota allotted to the United Kingdom. The terms of the agreement, which is to run until the end of 1985, will have to be agreed to by the respective Governments, but opposition is not anticipated.

Lancashire is still as dependent on export markets as she was before the war, and any further reduction in her export trade is bound to have disastrous effects on the economic welfare of the industry. Trade agreements, in which the strong bargaining power of the U.K., as a large importing

country, is brought into play, may, and probably must, be used as a temporary means for stabilising overseas competition, but in the long run Lancashire's exports are bound to depend on her competitive efficiency. The making of trade agreements must, therefore, not be allowed to obscure the necessity for reorganisation of the structure of the industry, for in a dynamic world no trade agreement will keep in check the development of an energetic rival. It is hoped that the co-operation aroused in the making of these different trade agreements will continue and assist the industry in securing co-operation on reorganisation.

(4) PURCHASE OF RAW COTTON

Summary

(1) The Liverpool Cotton Exchange has, on the whole, served the industry well. In recent years, however, several spinners have expressed dissatisfaction with it, owing to the "tying" of mills to particular merchants who have a financial interest in them or have advanced them money. On the whole, however, all criticisms which have been made of the Liverpool Exchange could be satisfied fairly easily, and there does not seem at the moment to be any grounds for a major alteration in the industry's method of buying raw cotton. It is conceivable, however, that changes in the structure of the spinning industry—in particular the trend of amalgamation—might necessitate such alterations, as the Exchange would tend to become less of a true commodity market.

(2) The bulk of cotton purchased by spinners is supplied through the members of the Liverpool Cotton Association, while the rest is supplied through members of the Manchester Cotton Association. Spinners in recent years have tended to buy a greater proportion of their cotton through Manchester than they did before the war (about 33 per cent in 1932 against 20 per cent in 1909-13). It is estimated that importation through Manchester saves the Oldham Spinners approximately 5s per ton.

(3) The Liverpool cotton market is divided into two sections: the Spot Market and the Futures Market. Dealings in futures enable the spinner to protect himself against fluctuations in the price of raw cotton. Considerable losses are fairly often made through mills omitting to cover themselves in this way according to the reports of liquidators, although this has been denied by the industry itself.

(4) A Spot Market is maintained in Manchester, but owing to the refusal of the Liverpool Cotton Exchange to regard raw cotton lying in Manchester warehouses as eligible to be dealt in on a futures contract, the development of the Manchester market has been retarded, and provision should be made for a settlement of this dispute in the interests of the industry as a whole.

The greater part of the cotton consumed in this country is imported by a large number of highly specialised merchants who through the brokers re-sell their bulk purchases to the Lancashire mills, in the quantities and qualities desired. For the services which the broker renders he is paid $\frac{1}{2}$ per cent commission, and it is his duty to see that the cotton delivered to the spinner is according to sample. In case of dispute the matter must be referred to arbitration. The spinner who buys on c i f terms normally pays by a bill of exchange. For spot sales, the spinner, if unable to pay out of his own banked funds, either pays by an overdraft or secures credit from the merchant.

In 1932 an attempt was made to encourage cotton spinners to finance themselves by means of bills rather than by overdrafts, but few responded to the invitation. Apparently, they prefer to pay the higher interest demanded on overdrafts, with an indefinite date of repayment, than to have bills maturing on fixed dates.

The Liverpool Exchange

Like most other exchanges, the Liverpool Exchange has received a good deal of criticism, and without prejudicing the question as to whether the importation of raw cotton could be done more efficiently in other ways it is therefore necessary to point out clearly its advantages, particularly in relation to the historical development of the industry. In the first place the functioning of the specialist firm in this branch of the industry has enabled the spinner to concentrate on production, and at the same time has placed a specialised knowledge at the disposal of the industry. Its importance to the industry is seen when it is realised that the requirements of the average mill of 100,000 to 150,000 spindles are so small in relation to the total consumption that if direct dealing between these mills and

the growers or ginneries were established the raw material would not be purchased on as favourable terms as at present. With the growth in size of spinning companies and combines, this argument would, of course, be weakened. Individual mills purchasing cotton direct from the grower would, moreover, require much more working capital to withstand the wide fluctuations to which the prices of cotton are subject. It must also be remembered that the spinner is a technician and has not the time and often not the training to watch those factors which influence the price of raw cotton. Annual imports of raw cotton into this country in the last three years have averaged approximately 1,200 million lbs (value £83 million), and it is obvious that, with the present organisation of the industry, this volume of trade can only be handled by highly specialised firms.

The services rendered by the Liverpool Exchange are, moreover, not confined to the British cotton industry, and although there has been for some years an increasing tendency for continental spinners who formerly dealt with Liverpool to deal direct with New York, re-exports of cotton still average about 56 million lbs per year (1930-32), while the value of the invisible exports is also probably large since a good deal of cotton bought through Liverpool is never landed in this country.

The strongest argument of all for the Liverpool Exchange, however, and one which has also been levelled against it in connection with misuse for speculative purposes, is the facility which it offers for hedging in the futures market. This question is dealt with below.

Another criticism which has been levelled against Liverpool is that many merchants and brokers by direct financial interests, or by reason of previous advances, have reduced many mills to the position of "tied houses" so that the latter can only buy their cotton from the particular merchant or broker. This has placed the mill in an impossible position and has enabled the merchant to charge any price he wished. Moreover, in consequence of the low financial position of the spinning section, merchants have often made substantial increases to the price which would have been charged under normal conditions in order to cover the risk of schemes of arrangement or liquidation.

Division of Imports between Liverpool and Manchester

The great bulk of the cotton purchased by spinners is supplied through the members of the Liverpool Cotton Association, while rather less than 750,000 bales are shipped direct to Manchester for sale through the members of the Manchester Cotton Association. The table given below shows the amounts of cotton imported via Liverpool and the quantity shipped direct to Manchester. It will be seen that the ratio of the total net imports into Liverpool to the total net imports into Manchester has, since the early post-war years, tended to decline, showing that spinners are evidently buying a greater proportion of their raw cotton through Manchester than they did before the war.

TABLE SHOWING RELATIVE IMPORTANCE OF LIVERPOOL AND MANCHESTER AS REGARDS IMPORTS OF RAW COTTON
(Million lbs)

	Gross imports Liverpool	Total re-exports	Estimated net imports Liverpool*	Gross imports Manchester†	Ratio total net imports Liverpool to total net imports Manchester
1909-18 (average)	1,770	280	1,490	380	3.91
1920 .	1,480	250	1,230	390	3.21
1921 .	970	150	820	200	4.11
1922 .	1,200	80	1,120	220	5.01
1923 .	1,030	110	920	240	3.81
1924 .	1,260	180	1,180	310	3.61
1925 .	1,520	140	1,380	350	3.91
1926 . . .	1,400	150	1,250	320	3.91
1927 . . .	1,280	120	1,160	340	3.41
1928 . . .	1,160	70	1,090	340	3.21
1929 . . .	1,170	80	1,090	300	3.01
1930 . . .	880	70	810	320	2.51
1931 . . .	740	41	699	340	2.11
1932 . . .	873	53	820	390	2.11

* Assumed that Liverpool is the only port which re-exports cotton

† Assumed equal to net imports

The Spot and Futures Markets and Price Fluctuations

The Liverpool cotton market is divided into two sections, (i) the spot market and (ii) the futures market.

The spot market is conducted like the spot market for other commodities. The cotton is sold from

RELATIVE MOVEMENTS OF RAW COTTON AND YARN PRICES

(d per lb and per cent of 1913 average prices*)

		Jan.	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Monthly Average
1928	American d per lb Middling %	9 94 144 0	10 57 153 0	11 03 159 0	11 23 162 0	11 41 165 0	11 93 172 0	11 47 166 0	10 39 151 0	10 39 151 0	10 66 154 0	11 05 160 0	10 66 154 0	10 89 158 0
	32's cop d per lb Twist %	14 87 144 0	15 37 149 0	15 62 152 0	15 25 148 0	16 87 159 0	16 87 164 0	16 12 157 0	15 25 148 0	14 87 144 0	15 37 149 0	15 50 151 0	15 50 151 0	15 58 151 0
1929	American d per lb Middling %	10 44 151 0	10 70 155 0	10 92 158 0	10 03 145 0	10 12 146 0	10 18 147 0	10 52 152 0	10 38 150 0	10 29 149 0	9 90 143 0	9 71 141 0	9 31 135 0	10 22 148 0
	32's cop d per lb Twist %	15 18 147 0	15 38 149 0	15 63 152 0	15 87 154 0	15 00 146 0	15 75 153 0	14 91 145 0	15 13 147 0	14 75 143 0	14 38 140 0	14 00 136 0	13 75 134 0	14 97 146 0
1930	American d per lb Middling %	9 23 133 0	8 31 120 0	8 51 123 0	8 53 123 0	8 49 122 0	7 64 111 0	7 63 111 0	6 57 95 0	6 05 87 0	6 26 91 0	5 94 86 0	5 34 77 0	7 33 106 0
	32's cop d per lb Twist %	15 00 146 0	13 38 130 0	13 38 130 0	13 63 132 0	13 43 131 0	13 00 126 0	13 00 126 0	12 38 120 0	12 38 120 0	12 25 119 0	12 25 119 0	11 75 114 0	12 96 126 0
1931	American d per lb Middling %	5 64 82 0	6 11 88 0	5 33 84 0	5 54 80 0	4 32 70 0	4 43 79 0	4 73 69 0	3 78 55 0	4 54 66 0	5 00 72 0	4 94 71 0	5 29 77 0	5 14 74 0
	32's cop d per lb Twist %	11 75 115 0	11 75 115 0	11 63 113 0	11 13 108 0	9 75 95 0	9 38 96 0	9 38 96 0	8 25 80 0	9 50 92 0	9 25 90 0	8 75 85 0	8 63 84 0	10 01 98 0
1932	American d per lb Middling %	5 53 80 0	5 91 86 0	4 95 72 0	5 00 73 0	4 32 62 0	4 43 64 0	4 50 65 0	6 93 100 0	6 03 88 0	5 52 80 0	5 35 77 0	5 10 74 0	5 30 77 0
	32's cop d per lb Twist %	9 00 87 0	9 25 90 0	8 63 84 0	8 38 81 0	7 63 75 0	7 63 74 0	7 63 74 0	10 25 100 0	9 63 95 0	9 00 87 0	8 37 86 0	8 63 84 0	8 71 85 0
1933†	American d per lb Middling %	5 33 77 0	4 94 71 0	4 79 69 0	5 15 74 0	5 39 85 0	6 37 92 0	6 40 92 0	6 25 90 0	5 60 81 0	5 44 79 0	5 43 79 0	5 15 74 0	5 56 78 0
	32's cop d per lb Twist %	8 33 86 0	8 50 83 0	8 33 81 0	8 50 83 0	9 12 89 0	9 75 95 0	9 75 95 0	9 75 95 0	9 12 89 0	9 00 87 0	9 12 89 0	9 25 90 0	9 09 88 0

* 1913 average price of American Middling = 6 92d 1913 average price of 32's cop twist = 10 8d.

† Figures refer to beginning of each month monthly averages are not yet available

sample by the brokers to the spinners As pointed out above, however, the main advantage of spinners buying through the Liverpool Cotton Association is that they are able, by means of buying and selling futures, to safeguard themselves against fluctuations in the price of raw cotton which affect the prices of yarn and cloth.

A further effect of fluctuations in raw cotton prices is that they influence business in the market. Rising prices encourage buyers to buy and business becomes brisk, while falling prices encourage buyers to hold off, business declines, and manufacturers have deliveries postponed. Improvements in raw cotton prices are accompanied by movements in cotton trade shares.

The following table shows the relative movements of raw cotton and yarn prices for the period 1928-33. It will be observed from the indices, calculated on the basis 1913 average=100, that general movements in cotton prices are followed by corresponding movements in yarn prices, although there is usually a time lag in the latter.

Futures contracts relate only to one grade, e.g. "Middling" for American cotton, "Fully Good Fair" for Egyptian Sakellandes and similar growths and "Superfine" for Indian growths. Only members of the Liverpool Cotton Exchange can enter into these contracts and the real dealers are importers, merchants and jobbers, although spinners deal in futures through their Liverpool "buying houses."

The simplest illustration of the working of the futures market is the case of a spinner spinning for stock. As soon as he purchases his raw material he immediately sells an equivalent quantity on a futures contract which matures at the time when he anticipates selling his yarn. If in the meantime prices fall, he loses on the value of his yarn, but in order to cover his futures contract he buys cotton at the lower price. His profit on this transaction—the difference between the price at which he bought the cotton to meet the future and the price at which he sold the future will minimise the loss in the value of the yarn caused by the fall in the price of raw cotton. Dealing in futures, however, cannot form a perfect hedge, since the prices of the standard cotton in which the futures contract is made and of the actual cotton the buyer holds may not move together, but they afford insurance against loss from general movements in cotton prices.

At times the cotton which the spinner requires may be dear relatively to the standard and at other times cheap, and if he is able to judge whether it is too dear or too cheap when making the contract, he can often save himself a considerable sum of money.

If nothing is done by the buyer or seller, the latter has the right to deliver the cotton on the maturity of the futures contract. Since the seller may deliver any grade not lower than the standard grade—e.g. low middling in the case of American cotton—and since the buying and selling of futures (apart from purely speculative use by the outside public) is regarded only as a means of minimising losses in production and marketing from price fluctuations, little or no cotton is bought by this method. Before the time comes for delivery the contract is generally "rung out" and the spinner who has dealt in futures leaves the market plus or minus his differences.

To prevent rash speculations weekly settlements are enforced. A settlement price is struck on Mondays and differences have to be paid by Thursdays in each week.

Futures as hedges are used by importers, merchants and spinners. It is usually held, however, that the last named do not use the futures market sufficiently as, in recent years, the losses of many mills have been attributed to the writing down of stocks. Weavers use futures, if at all, only to a very limited extent, and if the futures market in yarns, which has several times been proposed, were carried out they would be able to secure a more complete hedge with resultant advantages.

Purchase on Call Terms

In a number of cases spinners buy their cotton for delivery ahead on call terms in order to make certain that they will have no difficulty in securing it when they want it. This method of doing business is only made possible by the existence of the futures market, and it is unique to the cotton industry. It was adopted to save the expenses of dealing in "futures," although the merchant selling on call must put out futures if he covers by a fixed price purchase in the cotton growing country, and he usually adds the costs of this to his "points on." The spinner makes a contract to buy a certain grade of cotton on a fixed basis for delivery in some future month, the actual price being fixed as and when he calls the cotton. By watching the price of futures the spinner will know what his cotton will cost him at any stated time, and when he requires delivery he calls the cotton, and the broker fixes the price of the contract by a purchase of futures. In the meanwhile the seller of the contract has been gradually purchasing cotton, and every time he makes a purchase he sells an equivalent amount of futures. This method of buying on call is used very extensively by spinners.

The Manchester Cotton Market

A spot market is maintained in Manchester, under the auspices of the Manchester Cotton Association. The cotton bought in this market is shipped direct via the Manchester Ship Canal to Manchester, usually at the same freight as to Liverpool, and it is estimated that the Oldham spinner by buying his cotton through Manchester instead of Liverpool saves approximately 5s per ton. Unfortunately, the facilities offered by this market cannot be taken advantage of by the majority of spinners because business is transacted only on a spot basis, and because the Liverpool Cotton Exchange has refused to regard raw cotton lying in Manchester warehouses as eligible to be dealt in on a futures contract.

Undoubtedly if the Liverpool Cotton Association did recognise these stocks, much more cotton would be shipped direct to Manchester, thereby effecting a saving in delivery costs. But before such recognition is given, strong local prejudices will have to be overcome, as Manchester would probably increase in importance as a cotton importing port at the expense of Liverpool. The advantages which would arise from co-ordination of the Liverpool end with the spinning and manufacturing sections of the industry are considered below.

(5) SPINNING

Summary

(1) Relatively few firms combine spinning and weaving. The geographical separation of spinning in South Lancashire and weaving mainly in the North and North-east has been one of the factors accounting for this.

(2) The majority of spindles in the United Kingdom are mule spindles, whereas the majority in other countries are ring spindles. The relation of British to total world spindleage has declined continuously since the war. In 1933, against a world total of 211.47 million mule equivalent spindles the United Kingdom possessed 56.16 million (26 per cent), a considerable decrease on the pre-war figure.

(3) A considerable proportion of the plant was constructed before 1900, and the unprofitability of the American section, in particular, in recent years has led to necessary repairs and replacements being postponed.

(4) Up to 1928 the Egyptian section was comparatively prosperous, while the American section has suffered from acute depression since 1921. Since 1928 both sections have curtailed their production, though the reduction has been greater in the case of the latter than in the case of the former. Of the total spindleage in Lancashire about two-thirds are engaged on American and one-third on Egyptian cotton.

(5) Two-thirds of the world total number of spindles engaged on Egyptian cotton are localised in the United Kingdom, but there are already indications that other countries—e.g. Japan—are increasingly turning their attention to finer yarns.

(6) Both in the American and Egyptian sections a large proportion of the spindles are controlled by combines. In the Egyptian section three concerns control about 50 per cent of the total spindles. In the American section the Lancashire Cotton Corporation controlled about 27 per cent of the total spindleage in 1932 (although a large number have since been scrapped), and there are also various large groups together controlling about a further 15 per cent.

(7) Nearly all the firms in the spinning section are public limited liability companies, and, in the past, have raised both their share and loan capital locally.

(8) In 1919-20 the majority of mills in the spinning section were reconstructed or recapitalised. Since 1920 the greater part of the uncalled share capital has been called up, while since 1928 schemes of arrangement have tied up loan capital which does not incur interest charges and this has reduced the capacity of shareholders to meet their obligations.

(9) This financial reconstruction of the industry resulted in an increase in costs, but above all things has done most to hinder the reorganisation which has been so necessary for the last few years.

Geographical Division

Spinning is carried on by approximately 1,000 firms, mainly concentrated in South Lancashire and Cheshire. The chief centres are Oldham and Bolton, and the following table shows the distribution of spindles among the principal districts.

U.K. DISTRIBUTION OF SPINDLES (MULE AND RING)*
(Eight principal districts)
(000)

District	1922	1924	1926	1928	1930	1933	Per cent of total spindles 1933
Blackburn	1,186	1,224	1,135	1,097	1,059	799	16
Bolton	7,518	7,370	7,662	7,764	7,658	7,517	150
Farnworth	1,477	1,478	1,479	1,484	1,450	1,465	29
Heywood	1,114	1,100	1,096	1,094	1,062	950	19
Manchester	8,506	8,307	8,312	8,433	8,469	8,351	67
Oldham	17,168	17,231	17,614	17,402	16,378	15,044	299
Rochdale	3,781	3,749	3,797	3,797	4,034	3,875	78
Stockport	2,374	2,332	2,386	2,296	2,355	2,292	46
Other districts	—	—	—	—	—	—	296
							1000

* From Worrall's Cotton Trade Directory

Combined Spinning and Weaving

Relatively few establishments combine spinning and weaving, largely because spinners have tended to concentrate on the production of a narrow range of counts, while weavers require access to a wide range in order to cater for their different markets. Moreover, the spinning section has supplied a large export trade, and other industries, such as hosiery, have provided important outlets for yarn, so that it has been unnecessary to attempt to balance spindles with looms. There is also a geographical separation between the two sections of the industry, as weaving is carried on in North and North-east Lancashire, the principal centres being Blackburn, Burnley and Preston.

Ring and Mule Spindles

About 76 per cent of the total spindles in the United Kingdom are mule spindles, whereas in other countries ring spindles, which have a higher output, represent on the average about 66 per cent of the total. The following table shows the total number of spindles in the world and the United Kingdom over the period 1924-33, and the total number of ring spindles in the world and in the United Kingdom. It will be seen that (1) the proportion both of total spindles and ring spindles in the United Kingdom to the respective world totals has tended to decline in the post-war years, (2) world total ring spindles has increased considerably over the period considered, whereas mule spindles have declined.

A ring spindle is usually taken as equivalent to $1\frac{1}{2}$ mules, so that in 1933 U.K. "total equivalent spindles" were 56,162,000, and world "total equivalent spindles" 211,470,000, the U.K. therefore representing only 26 per cent of the world total equivalent spindles compared with 33 per cent when no differentiation is made between ring and mule. In the same way, world equivalent ring spindles represented 75 per cent in 1933 of world "total equivalent spindles" and U.K. equivalent ring spindles 32 per cent of U.K. "total equivalent spindles".

TOTAL NUMBER OF SPINDLES AND RING SPINDLES IN WORLD AND U.K.
(000)

	World total spindles	U.K. total spindles	U.K. total spindles as percentage of world total	World total ring spindles	U.K. ring spindles	U.K. ring spindles as percentage of world total	World ring spindles as percentage of world total spindles	U.K. ring spindles as percentage of total U.K. spindles
1924	157,477	56,750	36	94,531	12,754	13	60	23
1925	159,904	56,710	35	94,442	13,039	14	59	23
1926	162,972	57,404	35	98,058	13,649	14	60	24
1927	164,616	57,548	35	100,670	13,615	14	61	24
1928	164,979	57,101	35	101,472	13,455	13	61	24
1929	165,104	56,748	34	103,016	13,433	13	62	24
1930	165,143	56,277	34	103,016	13,511	13	61	24
1931	163,571	54,933	33	104,461	13,240	13	64	24
1932	162,070	52,776	33	105,067	12,724	12	65	24
1933	158,984	50,167	33	104,973	11,990	11	66	24

Efficiency of Plant

Little information exists about the efficiency of plant in Lancashire spinning mills. Mr John Ryan, formerly of the Lancashire Cotton Corporation, made a survey of 200 mills with a view to determining the age of their plant. The following table based on this survey shows the details of various types of plant by date of construction.

U K DETAILS OF PLANT IN SPINNING MILLS BY DATE OF CONSTRUCTION

	1860-80	1880-90	1890-1900	1900-10	1910-20	1920-30	Total
No of opening machines	88	122	340	746	540	483	2,269
%	1.4	5.4	15.0	33.0	23.9	21.3	100.0
No of carding engines	130	1,097	4,137	6,473	3,418	1,885	17,140
%	0.8	6.4	24.1	37.8	19.9	11.0	100.0
No of draw-frames	45	220	444	606	555	151	2,021
%	2.2	10.9	22.0	30.0	27.5	7.4	100.0
No of combers	—	—	—	28	194	224	446
%	—	—	—	6.3	43.5	50.2	100.0
No of speed frames	*556	1,699	2,316	3,442	2,443	899	11,855
%	4.9	15.0	20.4	30.3	21.5	7.9	100.0
Spinning No of mules	144	1,364	1,320	3,152	1,447	297	7,724
%	1.9	17.7	17.1	40.8	18.7	3.8	100.0
No. of ring frames	—	485	1,624	3,310	2,229	1,138	8,786
%	—	5.5	18.5	37.7	25.4	12.9	100.0
No of finishing machines	30	65	479	1,311	1,174	619	3,678
%	0.8	1.8	13.0	35.6	31.9	16.9	100.0

* Before 1880

It is estimated that opening machines, carding engines and draw frames have an efficient working life of thirty years. It was concluded as a result of this survey that 21.3 per cent, 31.3 per cent and 35.1 per cent respectively of these machines had outlived their efficient working life. About 98 per cent of the combers had run for less than twenty years, while 40.4 per cent of the speed frames had run for more than thirty years. It was found that some mules which were installed forty years ago were working satisfactorily, so that about 20 per cent could definitely be regarded as inefficient, while as rings have a working life of thirty-five to forty years, it will be seen that about 95 per cent are of reasonable efficiency.

Obviously date of construction is by no means the only guide to efficiency and a great deal depends on how the plant has been treated and what repairs and modernisations have been carried out, but for want of other data it can be taken as giving a useful indication.

Classification of Yarn Output

The spinning section may be divided into two sub-sections, according to the kind of cotton spun. The coarse end of the industry—the American—is concentrated largely in the Oldham district, while Bolton is mainly confined to the spinning of Egyptian and the finer counts. This localisation of the two sections is largely due to the influence of the textile machine makers. Dobson and Barlows and Threfalls of Bolton, have concentrated on the making of mules for the fine trade, whereas Platt Bros and Asa Lees of Oldham have specialised in machinery for the coarse end of the trade.

The American section is much larger than the Egyptian section, as in 1932 approximately 36 million spindles (67 per cent of the total) were nominally engaged on American and other cotton as against approximately 18 million (33 per cent) on Egyptian. Included in these figures are quite a large number of spindles—probably about 5 million—which can change from American to Egyptian or *vice versa* as economic expediency dictates. These are now, of course, mostly engaged on Egyptian. The following table shows the total production and the relative importance of the different sections.

U K PRODUCTION OF YARN
(Million lbs)

	1912	1924	%	1930	%	1931	1932
Total	1,979 0	1,895 2	100 0	1,031.1	100 0	1,058 0*	1,194 0*
%	100 0	70 5	—	52 0	—	53 5	60 3
Up to 40's	—	1,022 0	73 3	807 3	78 3	—	—
41's to 80's	—	813 7	22 5	183 0	17 8	—	—
81's to 120's	—	55 9	4 0	36 7	3 6	—	—
121's and over	—	3 6	0 2	3 5	0 3	—	—

* Estimate, based on consumption of raw cotton

The greater part of Lancashire's output of yarn before the war was in standard lines, and each mill kept within a very small range of counts. But during the post-war depression, many mills, in order to keep going, were compelled to depart from standardised production and produce a wider range of counts. When the Cotton Yarn Association was formed in 1926, it was found that 205 members were producing 685 different qualities, and since then it has been stated that the number of qualities produced has increased considerably. These 685 qualities were graded into 58 groups, which consisted of 20 qualities of weft, 17 qualities of twist, and 16 qualities of ring. This change in counts produced involved firms concerned in considerable expenditure, while at the same time it increased the competition in the more profitable lines, with the result that the position of the industry was made worse than it need have been. Standardisation is as vital—perhaps even more vital—a need in the case of yarns as in that of cloths.

It is estimated that the total production of yarn is distributed approximately in the following proportions: weaving 75 per cent, hosiery and elastic web 2 per cent, lace 2 per cent, thread, twine, etc 7 per cent, export 10 per cent, and other uses 4 per cent. It will be seen that the spinning is overwhelmingly dependent on the weaving section as an outlet for its products.

Post-War Decline in Production

Since 1921 the Lancashire cotton industry has continually worked short time, and the extent of the depression in the spinning section is shown by the following table, which compares the total net imports of raw cotton in post-war years with the average for the years 1909-13.

U K NET IMPORTS OF RAW COTTON
(Exclusive of Linters and Waste)
(Million lbs)

1909-13 (average)	1920	1922	1924	1926	1928	1930	1931	1932	1933		
1,990.3	1,647.6	1,347.1	1,435.5	1,593.1	1,439.4	1,140.1	1,049.9	1,204.5	1,348.5		
100.0	82.8	67.7	(percentage of 1909-13 average)		72.1	80.0	72.1	57.8	52.8	60.6	67.9

The decline in the production of yarn is due to a variety of factors, mostly affecting cloth as well, such as tariffs, competition of cheap labour countries, dissipation of sales effort, over-development of the industry, monetary instability, boycotts, etc., and the effect of these has been considered in detail in Section 2.

Relative Position of the Egyptian and American Sections

In the post-war years there has been a remarkable difference between the economic positions of the Egyptian and the American sections. The former up to 1928 was comparatively prosperous while the latter has suffered from acute depression since 1921. An indication of the relative prosperity of the two sections of the industry is shown by the fact that in 1928 imports of cotton from Egypt into the U.K. were approximately 90 per cent of the average imports for the years 1909-13, while imports from the U.S.A. were only 58 per cent of the pre-war average. Since 1928, however, production in both sections has declined, but the decline in the American has been much greater than that in the Egyptian section. The following table shows the imports of cotton from the U.S.A. and Egypt into the United Kingdom for the post-war years as compared with the average for the years 1909-13.

U K IMPORTS OF COTTON FROM THE U S A AND EGYPT*
(Million Pounds)

Imports from	1909-13 average	1920	1922	1924	1926	1928	1930	1931	1932	1933
U S A %	1,709 100 0	1,390 81 4	913 53 5	949 55 6	1,070 62 6	868 50 8	590 34 6	441 25 8	781 42 8	754 44 2
Egypt* %	400 100 0	288 72 0	324 81 0	364 91 0	362 90 5	353 88 3	260 65 0	267 67 0	302 75 5	— —

* Including the Anglo-Egyptian Sudan

The reason for this relative prosperity of the Egyptian section is that competitors up till recently have tended to concentrate on the production of the coarser yarns. The world total of spindles engaged on cotton other than Egyptian, totalled approximately 137 million and 140 million in 1924 and 1928 respectively, as against 26 million and 27 million spinning Egyptian.

The following table compares the number of spindles engaged on Egyptian in the U K with the world total. Since 1924 and particularly so after 1930, the proportion of Egyptian spindles in this country to the world total has tended to decrease. The proportionate decrease is due to a diversion of plant in other countries from the production of coarse to that of fine yarns. This shift, however, is unlikely to go much farther, as it is only possible for "marginal" plant to be so diverted, and the greater part of plant engaged on American could not, without expensive alterations, be adapted to the spinning of Egyptian cotton. Nevertheless, there is a definite tendency for the newer producing countries such as Japan and even India to start developing the finer end, and it is quite possible that the Egyptian section will have to face just the same troubles as have beset the American section, although it is certainly better organised to meet them.

U K NUMBER OF SPINDLES ENGAGED ON EGYPTIAN COTTON COMPARED WITH WORLD TOTAL
(000)

31st July	World Total	U K	U K as percentage of world total
1922	18,358	14,419	79
1923	22,453	18,370	84
1924	26,014	20,173	78
1925	26,463	18,438	70
1926	27,879	19,466	70
1927	26,645	18,001	68
1928	27,051	18,890	70
1929	26,578	17,484	66
1930	27,510	19,487	71
1931	26,704	18,301	69
1932	24,189	16,720	66
1933	23,994	16,279	71

This absence of fierce international competition, and the predominance of combines in the Egyptian section have prevented margins, as shown by the following table, from falling as low as in the American section.

PRICE MARGINS
(d per lb)

Year's average	Egyptian*		American†	
	d	%	d	%
1913	6 66	100	3 38	100
1928	9 78	147	4 67	139
1929	8 66	130	4 75	141
1930	8 17	123	5 58	165
1931	7 51	113	4 96	147
1932	7 15	107	3 40	101
1933	7 67	115	3 53	104

* Difference between price of 1 lb 60's twist Egyptian and price of 1 lb F G F Sakel

† Difference between price of 1 lb 32's cop twist American and price of 1 lb American Middling

It will be noted that in calculating these price margins no account is taken of the proportion of waste. From 112 to 120 lbs of raw cotton are required in the case of all types of cotton to give 100 lbs of yarn for a carded quality. Combed yarns require 130 to 160 lbs of raw cotton to 100 lbs of yarn, according to the quality of cotton used and quality of yarn required.

Spinning Costs in Relation to Total Costs

Spinning costs as a proportion of total costs vary according to the type of cloth produced. The following table, based on actual costings taken in 1933, shows spinning costs compared with total costs for heavy grey shirting, bleached shirting, and discharge print.

U.K. ESTIMATED TOTAL COSTS AND SPINNING COSTS OF TYPICAL CLOTHS*
(d per piece)

	Heavy Grey Shirting 36 in, 40 yds 64 x 62, 22/22 d	Bleached Shirting 36 in, 40 yds 76 x 80, 32/30 d	Discharge Print 27 in, 100 yds, 60 x 54, 42/42 d
Total c i f Cost	165 75 100%	173 78 100%	862 40 100%
Total Spinning Costs	19 24 12%	21 58 12%	29 56 8%

* Liverpool Cotton Futures taken at 600d per lb

On the same costing basis, beaming costs accounted for 2 per cent of the total cost both of heavy grey shirting and of bleached shirting, and 1.5 per cent of the cost of discharge print.

The corresponding figures for sizing costs were 5 per cent, 3 per cent and 1.3 per cent.

Principal Producers

The organisation of the industry at present is as follows. In the American section the largest firm is the Lancashire Cotton Corporation, with a capital of £8,688,675, originally controlling 9.3 million spindles, of which about 2 million have since been dismantled. There are also a number of associations based on common directorships, among which may be mentioned the Gartside group, with 14 mills and about 1,334,000 spindles; the Newton-Cheetham group with 688,000 spindles, the J. H. Bunting group with 2,136,000 spindles, the Hammersley group (partly Egyptian) with 1,545,000 spindles, and the Amalgamated Cotton Mills Trust with 1,432,000 spindles. These combines and associations account for approximately 45 per cent of the total spindles in the American section, while the rest of the trade is in the hands of companies operating one or two mills each.

Price cutting has been the chief characteristic of the American spinning section during the post-war years. The first attempt to stop this insane policy was the formation of the Cotton Yarn Association in 1926. This association consisted of mills which controlled about 20 million spindles, and control was exercised over its members by means of an uncalled share liability which could be called up from those members who disobeyed instructions. The association fixed prices for the different counts below which firms participating were not supposed to sell, but owing to the disloyalty of some of the chief members the scheme broke down in November 1927.

More recently a number of parallel voluntary price agreements have been made under the leadership of Mr Frank Platt of the Lancashire Cotton Corporation which have helped to bring about some improvement, although they cannot be regarded as having much stability or permanence, that for the coarse American counts having broken down at the end of May 1934. They are dealt with in greater detail on p. 109.

In the Egyptian section there are the following combines: Fine Cotton Spinners' and Doublers' Association, a combine of 46 firms and 5,365,000 spindles, Crosses and Winkworth, a combine of 12 firms and 1,700,000 spindles, and Combined Egyptian Mills, a combine of 16 firms, comprising 35 mills and 3,200,000 spindles (recently increased to 3,300,000 by the acquisition of Hall Lane Spinners, Ltd.). These combines are not engaged exclusively on Egyptian or other long staple cotton, nor do they control the whole of the fine end of the trade, for there are many individual firms which have shared in the prosperity of the Egyptian section. Together, however, they represent something like two-thirds of the Egyptian section.

Financial structure

Nearly all the firms engaged in spinning are public limited liability companies. The capital of the Egyptian section has been mostly raised by the issue of fully paid shares, while the method of financing the American section is peculiar and purely a local one. Before the war shareholders were generally called upon to subscribe not more than half of the nominal capital of the company, while the remainder of the capital was raised by means of loans, borrowed, say, at a rate of 4 per cent per annum. These loans were unsecured, and were withdrawable sometimes at call, but more often on notice ranging from fourteen days to three months. On the whole, this system worked tolerably well, and it had the confidence of the Lancashire public who were almost the sole subscribers of the industry's capital. Before the war shareholders received moderate dividends, and many companies had, by 1919, succeeded in converting their partly paid shares into fully paid shares by reducing uncalled liability through bonuses.

This position, however, was altered by the boom of 1919-20, when profits soared so high that a large number of mills in the American section were reconstituted on a new capital basis. In the majority of cases, mills were turned over to new companies at enormously inflated values, while in other cases the capital of the old companies was increased by the issue of bonus shares to their shareholders. Between March 1919 and July 1920 no fewer than 305 spinning (or spinning and weaving) and 76 weaving concerns were reconstituted in one or other of these ways. The peak was reached in March 1920 when the average price paid per 1,000 spindles was about £4,000, as against £1,400 in 1919 and £2,250 in the middle of 1920. The following table shows the extent of the reconstruction.

FINANCIAL RECONSTRUCTION IN THE SPINNING SECTION
(1st March, 1919, to 31st July, 1920)

	Number	Spindles
		(000)
Refloated concerns spinning	200	18,956
spinning and weaving	17	1,490
Recapitalised concerns spinning	32	962
spinning and weaving	2	1,490
*Reconstituted concerns spinning	42	1,956
spinning and weaving	20	826
Combines spinning and weaving	3	2,093
		28,773

* Method unknown

Between 1st March, 1919 and 31st July, 1920, 46 per cent of the total capacity of the spinning section was financially reorganised in one way or another. This financial reorganisation was mainly in the American section (11,445,000 spindles American, 3,867,000 Egyptian, and 5,134,000 American and Egyptian or unknown).

The increase in capital need not have caused any serious harm to the industry, had it been provided for by the issue of shares, because a writing down of capital could have restored the balance. But the increase was provided for not only by an increase in the share capital (generally £1 shares, 10s paid) but also by an increase in the loan capital, so that as the slump developed the payment of interest on loans not infrequently produced deficits. It may be said that in most cases the ordinary share capital was really "water."

The "Inquiry into the Cotton Industry," published in 1922 by the United Textile Factory Workers' Association, estimated that half the difference between the purchase price and the new paid-up share capital was raised by loans to the companies from the promoters (who in many cases received the premiums paid on shares), from the public (including employees), from the banks, and from the merchants or financial houses connected with the cotton trade. The Balfour Committee estimated that the total loan capital of the reconstructed group increased about five times as a result of the boom.

The loan capital after the boom was generally borrowed at 5 per cent free of income tax, as compared with 5 per cent less income tax in pre-war years. Therefore, when income tax was 6s in the £, the rate of interest paid was equivalent to over 7 per cent, while when income tax was 4s in the £ it represented over 6 per cent. Not only did the recapitalisation cause an increase in interest charges, but it should have resulted in an increase in depreciation, and if the plant was insured at the increased valuation, an increase in insurance premiums. Moreover, it encouraged many mills to pay salaries

and fees entirely out of proportion to the services rendered, and it has been most difficult to secure reasonable adjustments. The slump set in before the companies had the opportunity to reduce the inflated book values of their assets. Dividends declined, and in most cases completely vanished, and recourse was made to the banks, which advanced money often on the security of the property of a mill or on that of the uncalled capital. As the slump worsened the mills began to make calls on their shareholders, who were in many cases unable to pay, and in others could only meet their obligations by withdrawing loan capital from other mills. This only tended to aggravate the trouble, and about 1928 loan capital generally was tied up without payment of interest under numerous schemes of arrangement sanctioned by the Courts, thereby reducing the shareholders' ability to meet their obligations. It was found that up to 1928 the loan money was being repaid by increased borrowings from the banks.

The banks most heavily involved in the spinning section are the Midland, William Deacon's, District, Unon, Manchester and County, and Martin's. The Midland, which has by far the largest number of accounts, had in 1926-27 a lower average commitment than the next three banks in the list. The following table shows the approximate division of total equivalent spindles by banks, 1929.

U K. APPROXIMATE DIVISION OF TOTAL EQUIVALENT SPINDLES BY BANKS, 1929

	Egyptian	American	Total
Midland	14.8	34.7	28.0
William Deacon's	26.1	13.8	17.9
District	14.9	12.4	18.8
Unon	10.9	16.1	14.7
Manchester and County	6.2	11.4	9.6
Martin's	—	4.6	2.9
Westminster	22.2	1.0	8.0
Lloyds	—	0.8	0.2
National Provincial	—	0.4	0.8
Sundry	5.0	5.4	5.8
Total	100.0	100.0	100.0

The following table gives the total disbursements in dividends and the amount of unpaid capital called up by cotton companies (nearly all engaged in spinning) since 1920.

DIVIDENDS AND CALLS MADE BY COTTON COMPANIES, 1920-83

Year	Disbursements in dividends			Calls	
	No of cos examined	Amount £	%	No of cos calling up capital	Amount £
1920	250	5,550,920	19.7	—	—
1921	293	1,806,087	4.8	16	1,734,122
1922	301	1,232,585	2.7	18	1,041,456
1923	310	824,086	1.6	31	1,406,450
1924	315	885,625	1.7	36	1,806,820
1925	312	1,866,962	4.0	16	964,020
1926	312	1,346,044	2.7	45	4,711,750
1927	310	901,897	1.6	89	4,547,590
1928	306	823,003	1.4	85	3,439,817
1929	285	623,700	1.3	41	1,499,969
1930	240	412,658	0.7	80	3,599,596
1931	211	217,302	0.4	70	3,641,596
1932	207	180,778	0.3	27	688,123
1933	194	207,404	0.7	13	263,143

Although this table gives the amount called up many mills have only been able to collect a small proportion from their shareholders and liquidators have often been willing to accept small lump payments in settlement. It may be said generally that when an industry draws its capital from the district which is dependent on it, uncalled capital cannot be regarded as a sure reserve.

The most serious effects of the boom are not that it resulted in a slight increase in costs, but that it has firstly been partly responsible for the creation of weak sellers, and secondly has hampered the

reorganisation of the industry To provide the interest on their loan capital and bank overdrafts and later, when the banks were less willing to continue their advances to the industry, their working capital, many mills have had to sell their yarn at less than cost This has tended to weaken further the commercial position of the American section as a whole But the second effect of the boom is probably the more important As long as there was a possibility of calling up unpaid capital to balance losses or to meet the most pressing creditors there was little prospect of securing any joint action or amalgamation within the industry Had there been no uncalled capital, the industry would have been compelled to consider effective schemes of reorganisation earlier on in the slump, as the "prop" which has hindered reorganisation would not have been there As it is, such amalgamation as has taken place has only been achieved by the banks (often opposed by mill directors and shareholders), using their powers as mortgagees to force individual mills into the Lancashire Cotton Corporation

(6) WEAVING

Summary

(1) The majority of firms in the weaving section are engaged in weaving only. Although vertical structure is probably necessary in conjunction with automatic looms, it cannot be assumed that a change to vertical organisation would benefit Lancashire Such vertical concerns as there are in Lancashire are normally not self-contained

(2) About half the total loomage and probably more than half the effective loomage is concentrated in six principal towns, mostly in North and North-East Lancashire, which are characterised by a considerable degree of specialisation according to types of cloth.

(3) It has been estimated that over 42 per cent of the looms were installed before 1900

(4) Production of cloth in 1924 was 69.2 per cent of the 1912 total, while in 1930 it had declined to 38.1 per cent

Production in the coarse centres has declined more than in the finer centres

(5) Redundancy has been a less serious problem in the weaving section than in the spinning section, probably due to the different financial structure.

(6) In 1931, before the depreciation of the yen, Lancashire costs were on the average about 20 per cent above Japanese costs, the greater part of the difference being due to the difference in wage rates, but also to some extent to the greater average efficiency in Japan The depreciation of the yen has given Japan a further advantage of at least 15 per cent, but this advantage cannot be regarded as permanent

(7) The fundamental characteristics of the weaving section are the great variety of its products and the smallness of its mills On the basis of international comparisons, increased standardisation and increase in the average size of the producing units appears to be essential

Weaving is carried on by approximately 900 manufacturing firms largely concentrated in the North and North-East of the cotton area In addition to these it is estimated that there are 250 firms which combine spinning and weaving, but few, if any, of the latter are absolutely self-contained In recent years, however, the possession of spindles has been a handicap to manufacturing firms, for it has often been cheaper for them to buy from spinners than to produce on their own spindles Mixed concerns are commoner abroad, and in countries where automatic looms are used combined spinning and weaving is advisable

It is sometimes assumed from the favourable results of certain vertical concerns that there is an inherent superiority in vertical organisation, and that this should be made an aim in the reorganisation of the Lancashire cotton industry It should therefore not be forgotten that few vertical concerns are self contained, and that the rest are dependent on the horizontal structure of the rest of the industry, while owing to the existing geographical separation of the spinning and weaving sections any such attempt would involve enormous dislocation

Division by Districts

The following table shows the distribution of looms among the principal weaving towns

U K. DISTRIBUTION OF LOOMS*
(Six principal towns)

	1922	1924	1926	1928	1930	1933
Blackburn	95,891	97,552	95,910	98,170	82,094	73,217
Bolton	25,960	24,322	25,617	25,743	24,705	23,179
Burnley	110,337	108,193	108,615	101,929	87,037	83,415
Colne	27,792	27,513	25,981	26,436	22,957	19,607
Darwen	40,014	37,641	38,660	38,283	32,307	30,203
Preston	73,866	72,662	71,513	68,643	62,575	58,220

* From Worrall's Cotton Trade Directory

These towns have in the past specialised in the production of certain types of cloth. Burnley on medium greys, Blackburn and Darwen on finer greys and dhooties for India, Nelson and Colne on poplins, sateens, coloured cottons and the finer goods generally, Bolton and neighbourhood on fine cloths made from Egyptian cotton for the better markets, and Preston on a variety of plain cloths for bleaching and fancies.

The following table shows the number of looms in the world and the United Kingdom for the post-war years as compared with the number in 1914. It will be noticed that the proportion of looms in the United Kingdom to the world total is less in the post-war years than in 1914.

NUMBER OF LOOMS IN WORLD AND U K.
(000)

	World	U K.	No of looms in U K. as per cent of world total
1914	2,820	805	29
1920	2,921	798	28
1921	2,810	790	28
1922	2,881	799	27
1923	2,922	795	27
1924	3,078	792	26
1925	3,109	788	25
1926	3,176	786	25
1927	3,228	768	24
1928	3,178	755	24
1929	3,115	740	24
1930	3,085	704	23
1931	2,964	658	22
1932	3,022	625	21
1933	3,232	600	18

These figures must only be regarded as approximate. From reliable sources of information it appears that the number of workable looms in the United Kingdom in 1930 was less than 704,000.

Efficiency of Plant

Little information exists about the efficiency of plant in weaving sheds. Mr. John Ryan conducted a survey covering 14 per cent of the manufacturing firms in Lancashire and ascertained the age of their looms. The following table showing the details of plant in weaving sheds by date of construction is based on this survey. It will be noticed that the greatest proportion both of looms and preparatory machines was installed between 1910 and 1920, and that approximately 42 per cent of the looms were installed before 1900.

U K DETAILS OF PLANT IN WEAVING SHEDS BY DATE OF CONSTRUCTION

	1860-80	1880-90	1890-1900	1900-10	1910-20	1920-30	Total
<i>Preparatory plant</i>							
Number of machines	19	38	34	66	146	128	421
%	4.5	7.8	8.1	15.7	34.7	29.2	100.0
<i>Looms</i>							
Number	5,956	6,597	7,045	12,327	12,546	2,571	47,042
%	12.7	14.0	15.0	26.0	26.6	5.5	100.0

Production of Cloth

In the post-war years production has been lower than in pre-war years. In 1924 it was 69.2 per cent of the 1912 total, while in 1930 it had declined to 38.1 per cent. The following table compares the production of cloth in 1924 and 1930 with that before the war.

U K PRODUCTION OF CLOTH
(Million Linear Yards)

	1907	1912	1924	1930
Total	7,088	8,050	5,572	2,918
%	88	100	69.2	38.1
Woven wholly or in part from coloured yarn	689	719	492	304
Unspecified	6,399	7,331	5,080	2,609
Finished—				
Bleached (not dyed or printed)	2,198	2,539	1,852	1,044
Dyed (not printed)	1,142	1,263	981	717
Printed (dyed or not)	1,826	1,305	800	614

It will be seen that there has been a decline in the post-war years in all branches. The decline, however, in the highly specialised sections such as towels, velvets and quilts, has not been as great as in the other sections.

In 1914 there were approximately 805,000 looms in the United Kingdom, but in the post-war years, owing to the decline in production, there has been a progressive reduction in the total, as can be seen from the table on page 61.

Lancashire and Japanese costs

This decline in production has been due to numerous causes as has been shown in Section 2, but one of the most important is the difference in Lancashire and Japanese costs. The following table showing the difference in costs in 1931 will give some idea of the advantage Japan possesses in the production of certain types of cloth. Obviously the indication is only a rough one as there are lower cost producers in Lancashire and higher cost ones in Japan. These costs do not attempt to show the effect of yen depreciation which is dealt with elsewhere, since Japanese costs are converted to sterling at 24d to the yen. From the percentage represented by raw cotton on the one hand and internal costs on the other, an idea of the incidence of yen depreciation can, however, be obtained.

COMPARISON OF JAPANESE AND LANCASHIRE COSTS (a)
(d per piece)

	Dragon C		Soldier		2 Gese		Tiger in Bambo	
	UK	%	UK	%	UK	%	UK	%
Raw Cotton (b)	68.5	55	72.0	53	64	56.0	42.5	50
Labour Cost (c)	27.9	24	35.2	26	13	25.5	23.0	27
Other Costs (d)	25.0	21	29.2	21	23	25.5	19.9	23
Total	116.4	100	136.4	100	107.0	100	85.4	100
Per cent of Japanese Cost.	121.4	—	120.6	—	123.0	—	120.2	—

(a) Japanese costs are converted to sterling at 24d to the yen.
 (b) Cost of Dragon C and 2 Gese is 1.40d per lb, 18 per cent waste loss, 6 per cent regain. Cotton for Soldier and Tiger in Bambo is 1.40d per lb, 18 per cent waste loss, 6 per cent regain.
 (c) Lancashire labour costs are for a 6-loom system in weaving and exclude labour costs in sizing, cloth carrying, etc., in weaving, which are included in "other costs". Japanese labour costs include processes up to weaving and apply only to 1881.
 (d) See Note (c).

It will be seen from the above table that in the production of these four types of cloth, Japan had an advantage of at least 20 per cent over the United Kingdom in 1881. Although the lower wage rates paid in Japan account for the major part of this advantage, part is due to the greater average efficiency of the Japanese industry. Moreover Japan's advantage has of course been greatly increased by the depreciation of the yen which has taken place since 1881 (see p 121). As the average value of the yen for 1933 was 14 6d, it is estimated that the depreciation of the yen (based on the internal costs given in the above table) has given Japan an additional advantage of approximately 15 per cent.

Weaving costs in relation to total costs

Weaving costs in relation to total costs vary from cloth to cloth. The following table, based on actual costings taken in 1883, shows weaving costs compared with total costs in the United Kingdom for a heavy grey shirting, a bleached shirting, and a discharge print.

U K ESTIMATED TOTAL COSTS AND WEAVING COSTS OF TYPICAL CLOTHS
(d per piece)

	Heavy Grey Shirting 36 in , 40 yds , 64 x 62, 22/22 d	Bleached Shirting 36 in , 40 yds 76 x 80, 32/30 d	Discharge Print 27 in , 100 yds , 60 x 54, 42/42 d
Total c i f Cost	165 75	173 78	862 40
Total Weaving Costs	100% 85 28 21%	100% 43 78 25%	100% 57 45 16%

From the table on page 61 showing the distribution of looms by towns, it will be seen that a decline has taken place in all sections, but that the greatest decline in the numbers of looms has taken place in those towns specialising in the production of the coarser cloths. For example, between 1922 and 1933 the number of looms in Burnley declined by approximately 25 per cent, while in Bolton the decline was only 10 per cent. This relatively greater decline in coarser cloths has resulted in many firms which formerly specialised in these, branching out into new products. This has necessitated constant experiment and adaptation of machinery, and the loss in specialisation has resulted in an increase in costs. According to the Balfour Report it has been easier to secure a reduction in the total capacity of weaving plant than it has to reduce spinning plant. The main reason for this is probably to be found in the difference in the financial structure of the two sections, for in the weaving section there has been no uncalled capital to hinder elimination of redundant plant.

Diversification of products

The fundamental characteristics of the weaving section are the great variety of its products and the smallness of its mills. About two-thirds of the looms in Lancashire are plain looms, which can be so adjusted that they can produce a wide range of cloths, while further diversification is secured by varying the construction of the cloth and the kind of yarn used. It has been shown by Dr. Wisslink that the number of looms engaged on the production of one particular kind of cloth in the chief weaving towns is very small. The following table shows the average number of looms per mill and per product for Burnley, Blackburn and Colne. The figures given in the table are only an indication as a firm may advertise itself as making a cloth which it only makes infrequently.

U K AVERAGE NUMBER OF LOOMS PER MILL AND PER PRODUCT

Town	Average number of looms per mill	Average number of looms per product
Burnley .	860	65
Blackburn .	1,009	54
Colne	450	18

This small number of looms per mill and per product is inadequate to secure the most economical use of plant. For Burnley products Dr. Wisslink estimates that the most economical size of a mill is one of 2,500 to 3,000 looms, while the minimum should never be less than one of 1,800 to 2,000 looms, and at this size only a few types of cloth should be produced. In America mills catering for the same trade generally devote 500 to 1,000 looms to the production of one type of cloth. Mills producing Blackburn products in the U.S.A. on an average have 2,600 looms each, while 1,000 looms as a rule produce one type of cloth, whereas in this country the average mill contains only just over 1,000 looms. In Colne there are two categories of mills: the first producing fine quality cloth and the second producing somewhat similar goods but not so fine. The average number of looms per mill in the first category is 200. Considering the fine quality of their work these mills do not appear to be too small when judged by American standards, where they are, on an average, even smaller. It is estimated, however, that the most economical size for the mills in the second category is about 2,000 looms per mill, and since in Colne they are much smaller than this the position is less satisfactory.

If production in Lancashire could be standardised there would be an immediate economy in costs of production. This is probably not possible to any great extent in the case of figured cloths, which depend largely on the skill of the designing end of the trade. In the case of cloths of plain or single weave, however, standardisation is possible, and the tens of thousands of types which exist at present

could be enormously reduced in number to the benefit of the industry as a whole. For example, the many different types of cloths sold in the Indian market could be covered by a single standard cloth. Generally speaking, a cloth which is of standard quality in the unbleached state will be of standard quality when dyed or bleached, as it can only be dyed or bleached in a limited number of ways. Even in printing Japan has shown that there is some possibility of securing standard fabrics. Uniformity can however only be introduced if there is some central organisation in the section and is probably best approached from the marketing end in the initial stages by placing bulk orders for standardised lines.

Combines

In the weaving section of the industry the private limited liability firm or partnership still predominates. This is largely due to the non-specialisation of the section for, as the Balfour Committee suggests, where the nature of the output has to be constantly changed, a private employer or group of partners may have advantages over the joint stock company. Another reason is undoubtedly the ease with which men, with technical ability but little capital, have been able to rent the necessary looms and power.

There are, however, the following combines, all of which both spin and weave.

- (1) Amalgamated Cotton Mills Trust Ltd, with a capital of £7,250,000. Fifteen spinning and weaving firms.
- (2) Quilt Manufacturers Ltd, with a capital of £1,185,000. 1,500 looms and 21,000 spindles.
- (3) Joshua Hoyle & Sons Ltd, with a capital (share and debenture) of £3,499,950. 9,200 looms and 620,000 spindles.
- (4) United Africa Co., Ltd. 2,185 looms and 86,000 spindles.
- (5) Calico Printers Association Ltd. 3,862 looms, 162,000 mule and 45,500 ring spindles.
- (6) Lancashire Cotton Corporation Ltd, which in June 1933 controlled 9,827,170 spindles and 21,041 looms (equal to 507,192 spindles), but which has since reduced its spindleage to about 7.2 million and also, to a certain extent, its looms.

(7) FINISHING

Summary

- (1) Each of the different groups in the finishing section is dominated by a combine.
- (2) The finishing section, compared with the other sections, has been relatively prosperous during the post-war years.
- (3) Manufacturers and merchants complain that the high charges maintained by the finishers have been one of the causes of the depression.
- (4) The total receipts of the finishers have been greater in the post-war years than in pre-war years, while the quantity of cloth processed has declined.
- (5) It has been contended that it is cheaper to send grey cloth to be finished on the Continent than to pay the price charged in this country.
- (6) The finishers claim that their increased prices are due to increased costs, and that their better profit figures are due to the advantages of amalgamation. In September 1932, however, there was a substantial reduction in bleaching prices.
- (7) There has been general opposition to the continuance of the Dyestuffs (Import Regulations) Act, 1920, but the position has been improved by the removal of the tariff on imported dyestuffs.

The finishing section, which consists of approximately 850 firms, is divided into three different groups, bleaching, dyeing and printing. Each of these groups is dominated by combines—bleaching by the Bleachers' Association (62 firms); dyeing by the Bradford Dyers' Association (27 firms), the British Cotton and Wool Dyers' Association (30 firms), and the English Velvet and Cord Dyers Association (6 firms), and printing by the Calico Printers' Association (74 firms). These combines were formed before the war largely as a result of severe internal competition, and in addition each group has set up a district organisation which includes a sufficient proportion of the non-combine firms to operate as a price fixing organisation.

U.K. TRADING PROFITS OF FINISHING COMPANIES

Company	Paid up Share Capital £	Year Ending	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
English Velvet and Cord Dyers' Association	647,011	31st Dec	86,849	62,316	-21,000	79,418	85,965	95,889	69,185	81,000	18,887	24,000
British Cotton and Wool Dyers' Association	774,165	31st Mar	191,496	185,184	58,285	95,985	175,897	132,511	110,226	37,638	80,843	113,449
F. Steiner & Co	925,000	31st July	94,815	3,000	-269,000	-99,000	76,533	-44,000	-197,000	-126,294*	5,572	-18,564
Bradford Dyers' Association	4,808,081	31st Dec	885,991	611,222	550,714	708,319	817,994	538,800	147,800	178,200	123,200	231,900
Calico Printers' Association	5,026,840	30th June	1,191,524	1,381,554†	856,178	859,833	1,052,150	777,582	710,794	346,751	656,228	629,516
Bleachers' Association	6,806,737	31st Mar	1,470,957	1,532,428	1,466,728	1,008,896	1,353,019	1,844,667	1,235,217	522,185	564,053	536,419
Total Trading Profits	£	—	8,921,632	3,725,704	2,641,905	2,653,451	3,561,558	2,844,899	2,075,722	989,480	1,448,233	1,516,720
	%	—	100	95	67	68	91	78	54	25	37	39

* After writing off £18,500 loss on investments
 † Including £167,708 Profit on Sale of French Works.

Profits of Finishing Companies.

Although the firms outside the combines have tended to take a larger proportion of the work than they did before the war, the latter throughout the post-war depression have continued to operate on a relatively profitable basis. The following table shows the total capital and the trading profits of the combines for the years 1924 to 1938. It should, however, be borne in mind that the profits of the different companies are not strictly comparable owing to the different methods of accounting employed.

Finishing is conducted mainly on a commission basis, and since no stocks are carried the finishing trades have not suffered, as the other sections of the industry have, from fluctuations in raw cotton prices. According to the 1930 Census of Production the net value added to cotton piece goods and yarns by the finishing processes was £18.4 million. The finishing trades also process other textile fabrics, but as the gross value of work done on all fabrics in 1930 was £28.6 million, it will be seen that cotton goods account for nearly two-thirds of the total.

The manufacturing sections of the industry and the merchants complain that one of the causes of the post-war depression in the cotton industry has been the high charges which the various finishers have maintained. The fact that many finishers have been making a higher profit on less business suggests that there is some truth in this complaint, but probably too much importance has been attached to it, at any rate as far as the industry as a whole is concerned, as the greatest fall in exports has been in unfinished goods.

The following table shows the quantity of cloth processed, the value of the work done, and the average charge per 1,000 linear yards for the years 1912, 1924 and 1930.

QUANTITY OF COTTON CLOTH PROCESSED, VALUE OF WORK DONE, AND AVERAGE CHARGE PER 1,000 LINEAR YARDS

		Quantity (000 linear yards)	Value of work done (£000)	Average Charge per 1,000 linear yards	
				£	%
Bleaching	1912	2,474,224	8,190	1 27	100
	1924	1,795,552	6,508	3 62	285
	1930	1,048,768	8,681	8 48	274
Dyeing	1912	1,249,417	4,370	3 44	100
	1924	957,850	8,790	9 19	267
	1930	717,452	5,263	7 34	212
Printing	1912	1,295,707	5,096	3 85	100
	1924	790,839	9,345	11 80	306
	1930	614,089	6,370	10 39	270

From the above table it will be seen that the quantity of cloth processed in 1930 was only 67 per cent of that in 1924 and 48 per cent of that in 1912, while the receipts of the finishing section have been considerably greater in post-war than in pre-war years. In 1924 and 1930 the index of the average cost per 1,000 linear yards of unbleached cloth was 248 and 172 respectively, as compared with 100 in 1912. It will therefore be seen, by comparing these figures with those given in the above table, that finishing charges have increased in a greater proportion than the cost of unbleached cloth. On 18th September, 1932, however, a substantial reduction in bleaching charges was announced by the Bleaching Trade Advising Board. The 5 per cent surcharge was removed, and as regards shirtings, a further 5 per cent reduction was made, while as regards mulls a reduction of 15 per cent was made. Although several downward adjustments had been made from time to time for limited ranges of cloths, this was the first general reduction for some years and has contributed to the increased shipments to India. In recent months there has in fact been a considerable amount of price cutting among commission dyers, and an attempt is now being made to stop this.

In May 1934 a reduction of 15-20 per cent in printing charges was made. The reduction was applied to Indian styles and it was reported that as a result shipments to India were considerably increased.

Finishing Costs in Relation to Total Costs

Finishing costs as a proportion of total costs vary from cloth to cloth, but the following table, based on an actual costing taken in 1933, shows finishing costs compared with total costs for a heavy grey shirting, a bleached shirting, and a discharge print.

U K ESTIMATED TOTAL COST AND FINISHING COSTS* OF TYPICAL CLOTHS
(d per piece)

	Heavy Grey Shirting 36 in , 40 yds 64 x 62, 22/22 d	Bleached Shirting 36 in , 40 yds 76 x 80, 32/30 d	Discharge Print 27 in , 100 yds 60 x 54, 42/42 d
Total c i f Cost	165 75	173 78	362 40
	100%	100%	100%
Total Finishing Costs	12 00	23 00	175 00
	7%	13%	49%

* Liverpool Cotton Futures taken at 6 ood per lb

It has often been contended that it is cheaper to send grey cloth to be finished on the continent than to pay the prices charged in this country Exports of grey cloth to Western Europe, as shown in the following table, have been greater in the earlier post-war years than in 1913, and the increase appears to support the above contention, though the more recent decrease should be read in conjunction with the reduction of finishing charges in this country

U K EXPORTS OF GREY CLOTH TO WESTERN EUROPE*

Year	Million Linear Yards
1913	179 2
1922	355 5
1924	276 4
1926	206 3
1928	204 4
1930	117 6
1931	85 7
1932	70 1
1933†	90 5

* Germany, Holland, Belgium, France, Italy and Switzerland

† Estimate

The finishers have strongly denied the accusation on the part of the manufacturing sections of the industry, and have replied that lower prices are possible abroad because wages are lower, working hours longer, and dyestuffs cheaper, although as far as dyes are concerned this is certainly not the case in Japan and is doubtful, though difficult to verify in the case of many continental countries It is claimed that the larger profits earned by the finishing trade are mainly the result of the economies of combination which could with advantage be copied by other sections of the industry Moreover, the practice followed by merchants of placing orders for short lengths to be finished differently undoubtedly results in higher costs and prices than if larger orders were placed for standardised designs These problems, however, can only be solved by the establishment of effective co-operation between the different sections of the industry

Cost of Dyestuffs

In spite of this disagreement between manufacturers and merchants on the one side and finishers on the other, there is, however, general opposition from the industry to the continuance of the Dyestuffs (Import Regulation) Act, 1920, which in 1933 was renewed for another year Under this Act imports of dyes were prohibited except under licence, and on top of this restriction such colours as are admitted were subjected to a 10 per cent tariff from December 1932 Its effect was to increase prices of dyestuffs in this country, which now are approximately twice as high as those ruling in 1913 In addition to this increase in price, British colour users complain that they will not have access to the products of other countries, as under the international agreement recently concluded between the dyestuff producers of Great Britain, France, Germany and Switzerland, markets were allocated among the different competitors, and a further advance in prices was agreed on. It is claimed by the cotton industry that the effects of the tariff and the international agreement will be to cause an increase in printing and dyeing costs in this country, thus adding to Lancashire's difficulty in competing in the world's markets In September 1933, however, the position with regard to dyestuffs was reconsidered by the Import Duties Advisory Committee, which recommended that the licensing system should be

continued but that the duty of 10 per cent imposed under the Import Duties Act should be abolished. It was also recommended that complaints by consumers about exploitation in respect of dyestuffs should be considered by an independent body, and that the industries concerned should set up a joint committee of makers and users to act as a consultative body on questions of prices and supplies. This step is expected to go some way, at any rate in meeting the objections of the cotton industry, and with the removal of the 10 per cent duty which, when imposed as well as the restriction on imports, certainly did introduce an element of unfairness, the basis for these objections has been largely removed.

Legislation was introduced in December 1938 to give effect to these recommendations and to consolidate the remaining provisions of the Act of 1920. The new Bill has had a mixed reception since, although it removes most of the original causes for complaint, intermediate compounds, although used for the manufacture of many dyes, are not exempted from the duty although they can only be imported under licence.

Redundancy Scheme

In February 1934 a scheme was put forward by Mr W P Bridge, managing director of Smedley Dyers, Ltd., Manchester, which was stated to have the support of about sixty or seventy firms in the finishing section, including all the larger firms. The only opposition came from floated companies many of whom had purely nominal capital and no debts or bank overdrafts. The scheme provided for:

- 1 A levy on turnover sufficient to deal with redundant plant
- 2 Fines for non-observance of rules
- 3 The appointment of an independent chairman, with a knowledge of the industry, and of an executive committee and inspectors
- 4 The fixing of reasonable economic selling prices both for the home market and the export trade

There are two main difficulties to be overcome. In general if the principle of the levy is to be effective, the figure must be fixed at too high a level for the majority of firms in their present financial condition, but in this connection the finishing section has a greater chance of success than the spinning or manufacturing sections in view of its better financial position. The second difficulty is one which has already been encountered in the spinning section, namely the danger to price agreements due to non-observance by a small minority. On this point some form of permissive legislation would probably be required.

(8) MARKETING

Summary

(1) Approximately half of the yarn sold on the Manchester Royal Exchange is sold direct by spinner to manufacturer, while the remainder passes through the hands of yarn agents. The proportion handled by yarn agents is, however, decreasing.

(2) The yarn agent, while performing the useful functions of the middleman, has helped to keep alive a large number of small firms, and has facilitated weak selling.

(3) The sale of cloth is in the hands of cloth agents, merchants proper and home trade merchants and wholesale drapers.

(4) The majority of merchants are shippers. English merchants, except in European markets, do not deal directly with the local wholesalers or retailers.

(5) Approximately one-third of the shippers do their own packing, while the remainder have their packing done by packing firms.

(6) The manufacturer works to the detailed order of the merchants, and the number of cloths is vast.

(7) The United Kingdom is probably the only country which has not got standard cloths.

(8) From published accounts it appears that those companies with marketing organisations of their own have fared better than those completely dependent on merchants.

(9) The finishing companies are beginning to develop their own marketing organisations, though the antagonism of merchants to this has hindered progress.

(10) The English merchant does not carry large stocks in his market, whereas the Japanese do, and for this and other reasons are in a position to deliver much more quickly

(11) With regard to the China market:—

(i) Japanese goods are more popular with Chinese merchants than Lancashire goods, as they yield quicker sales and a larger margin of profit. The boycott following the Manchukuo dispute affected Japan very adversely, but has decreased in intensity

(ii) The indent system has encouraged severe competition between importers.

(12) There have been various schemes for organised and direct marketing, four examples of which are:—

- (i) The Eastern Textiles Association,
- (ii) The British Cotton Textile Association,
- (iii) The Lancashire Textile Co-operative Society,
- (iv) The Anglo-Indo Corporation

The first failed largely through faulty financial technique and because it was an unpopular experiment. The second obtained the support of all the sectional associations and still exists as a body authorised to initiate and supervise co-operative ventures. The third and fourth have never existed except on paper. Actually, however, lack of personnel and determination were the basic causes, and the question of jobs among the merchant community has always hindered reorganisation.

A Yarn—Between the spinner and the manufacturer is the Manchester Yarn Market, which facilitates the transaction of business between the two sections of the industry. This market, owing to the more variable nature of yarn, is less highly organised than the Liverpool raw cotton market. When the yarn is not sold directly by the spinner, it passes through the hands of a “yarn agent,” who may either find a purchaser in return for commission, or take all the risk by buying the yarn on his own account. It has been estimated that 50 per cent of the total yarn sold on the Manchester Royal Exchange is sold direct by spinners to manufacturers while the remainder passes through the hands of “yarn agents.”

“Yarn agents” generally work on a commission of 1 per cent, but should they guarantee the account, there is an additional charge of a further 1 per cent. It is doubtful whether agents are as willing as they were to take this additional risk, as defaulting customers have recently involved many of them in heavy losses. The undisputed advantage of the yarn agent is the general one of all middlemen, namely, that he brings spinner and weaver into touch with each other, although his greatest service is to the small establishment which cannot afford the services of a full-time salesman. The existence of “yarn agents” probably helps to keep alive a large number of firms which are too small, both technically and commercially, and thereby prevents concentration within the industry. The main disadvantage of the “yarn agent” is that he facilitates weak selling at the expense of the spinner who holds out for an economic price, and it has been alleged that while receiving his commission from the spinner he really acts as buying agent for the manufacturer. As his commission varies according to his turnover, it is in his own interests to push the lower price yarn for which there is a relatively greater demand. This objection is of great importance as it necessarily weakens the commercial position of the industry. A further point is that certain spinners appear to be unwilling to sell except through their yarn agent, even when the opportunity occurs, since they may be normally too dependent on him to do so. In this connection the experience of the Eastern Textiles Association (see p. 74) should be noted. The same difficulty arises, of course, between manufacturers and merchants.

B. Cloth.—The sale of cloth is in the hands of three channels

- (1) Cloth Agents
- (2) Merchants proper.
- (3) Home Trade Merchants and Wholesale Drapers, such as J & N. Phillips, Rylands, I & J Cooper, and S & J Watts

It is estimated that there are about 158 merchants engaged in the domestic trade, about 800 agents and 750 shippers. Nearly all these are members of the Manchester Chamber of Commerce, and are organised into seven geographical sections for the purpose of promoting and safeguarding their interests. The sections are as follows

- (1) Home and Overseas Dominions.
- (2) Africa
- (3) India
- (4) China and the Far East
- (5) Europe and the U S A
- (6) Central and South America
- (7) Egypt, Greece and the Levant

The agents generally work on a commission basis, but guaranteeing the account and sometimes financing the goods. A few of these firms have considerable capital, but with the decline in business there has been a reduction in their numbers since the war

Functions of the Merchant

The functions of the merchant are, briefly, to finance the goods from the time they leave the manufacturer until they reach the purchaser, to possess a minute technical knowledge of cloths, and to have exact knowledge of the conditions and the requirements of his market. The majority of the merchants are shippers, and the better houses generally establish their own officers in their markets or else keep in close touch with market conditions through correspondents. As a rule, shippers confine themselves to a single market or group of related markets, and supply all the types of cloth required by that market. There are, however, some firms which specialise in types of cloth, and these deal with all markets. With the exception of the European market, British merchants do not normally deal direct with the local wholesalers or retailers.

About one-third of the shippers do their own packing, but in recent years this proportion has tended to decline, and the great majority of shippers rent premises from, and have their packing done by, packing firms. The rent paid for the accommodation varies inversely with the amount of work the tenant gives to his packer. This system has encouraged men with little capital but with a good knowledge of cloth to set up as shippers.

It is to the detailed order of the merchant that the manufacturer weaves his cloth, and as each merchant has his own particular line, the number of different kinds of cloth is vast. A slight difference in price will cause a merchant to transfer his order from one manufacturer to another, and this, coupled with the many varieties of cloth, has made mass production of any particular line almost impossible. This country is probably the only country which has not got standard cloths, for Continental and Eastern manufacturers all have them. Moreover, another weakness in this system is that shipping houses are free agents selling the goods which yield the most profit, in some cases irrespective of the country in which they are produced. Consequently, the interests of the merchants are often different from those of the manufacturers, for it may pay the former to push foreign goods at the expense of the latter. Obviously, much closer co-operation between the two branches is desirable, and this is dealt with in detail on p. 112.

Advantages of Combined Manufacture and Marketing

About eight public companies and eighteen private companies, either spinners or manufacturers or both, have developed marketing activities of their own. From the results of the public companies, it appears that the firms which have combined marketing with manufacturing have fared better than the majority of those firms entirely dependent upon merchants. The table below gives the capital and trading profits and losses of seven public companies for the years 1924 to 1933. It must be borne in mind, however, that the profits of the different companies are not comparable with each other, owing to the different methods of accounting employed.

TRADING PROFITS AND LOSSES* OF SEVEN COTTON SPINNING AND/OR MANUFACTURING CONCERNS
WITH MERCHANTING FACILITIES OF THEIR OWN (£)

Company	Paid up Capital	Financial Year ends	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Amalgamated Cotton Mills Trust	7,250,000	31st Aug	210,008	619,259	576,869	480,135	458,855	142,217	-76,055	‡29,151	‡87,988	‡47,861
Sir E. Armitage & Sons	250,000	31st Mar	-9,156	-18,489	-7,187	-24,160	-11,185	-19,667	-18,198	-17,898	-2,778	-8,115
Ashton Bros & Co, Ltd	324,000	31st Dec	20,029	52,257	-4,564	32,378	-15,930	21,868	-19,782	15,303	20,124	24,334
Barlow & Jones, Ltd	958,000†	31st Dec	127,218	104,049	109,578	117,640	101,825	100,084	51,707	58,841	48,040	55,188
Joshua Hoyle & Sons	1,999,950	30th Sep	194,118	274,609	173,348	170,888	151,286	182,890	99,176	9,955	§88,451	90,900
J, F & H Roberts, Ltd	350,000	30th Nov	44,849	44,008	44,107	55,567	50,265	50,545	43,194	31,290	35,392	30,169
Tootal Broadhurst Lee & Co, Ltd	1,249,595	30th June	142,088	145,754	114,967	104,808	115,815	146,870	100,426	86,616	95,089	¶127,750
Total Profits	£12,356,545	—	729,149	1,221,492	1,006,668	986,751	849,981	574,257	180,468	158,828	267,301	372,587
	%	—	100	167	138	128	116	79	25	22	37	51

* Excluding Depreciation and Interest

† In 1927 the Capital was reduced to £676,500 by repaying 10/- per share on 558,000 issued Preference Shares

‡ Excluding Horrockses, Crewdson & Co, Ltd

§ Including dividend of £30,000 declared by subsidiary companies

¶ Including surplus from sale of British Government securities of unstated amount

|| After deducting Employees' Bonus of £20,000, such payment being resumed under the Bonus Scheme, after a break of three years

It should be emphasised, however, that the manufacturer intending to undertake his own marketing, has to exercise extreme caution in order not to antagonise the merchants on whom he is otherwise dependent, and this has naturally tended to prevent the wider development of manufacturers' sales departments

A further, and perhaps even more important development, is that the finishing companies are beginning to go out into the export marketing field, not only eliminating the Manchester merchant, but also establishing their own distributing organisations abroad—e.g. India—a policy which has been very successfully pursued by the oil and chemical, electrical and radio industries. The Manchester merchant, while responsible for obtaining most of the new trade in the past, has undoubtedly hindered the establishment of the direct contact between manufacturer and consumer which is so urgently needed.

Marketing Methods

The method of marketing varies in different markets, but in no case does the English merchant maintain any connection with the retailer, and in most cases, no connection even with the local wholesaler. The dealers in the local markets generally cable offers for goods, and the shipper cables counter suggestions regarding the price. Delivery is generally fixed for some future date, in order to allow the goods to be manufactured, and terms are usually payment within 60 or 90 days. Besides not maintaining direct connections with the retailer, the English merchant does not carry large stocks at any central distribution point in his market, and the credit he gives is generally not for as long a period as that of his competitors. This system of merchanting makes the English merchant too reliant on the wholesaler at the port, and it deprives him of the opportunity to gain immediate knowledge of the changes in the requirements of the ultimate purchaser. The shipper in the past has relied to a large extent on the part played by trade marks, which incidentally in recent years have been appropriated to a considerable extent by Lancashire's Eastern rivals, but the effect of these is in any case often lost on the ultimate consumer as the cloth more often than not reaches him in the form of made-up garments. The necessity of dealing as directly as possible with the consumer has been shown by many industries, one recent example of which is the film-making industry, in which individual concerns have to an increasing extent built their own cinemas for the purpose of showing their often unsatisfactory products.

The China Market

Although, as stated above, the methods of marketing vary in different markets, it may be useful to describe briefly the methods employed in one of the biggest markets, namely, China. There are two main distribution centres for piece goods, Hong-Kong and Shanghai. The former is the distribution centre for the south, while the latter is the distribution centre for the remainder of the country and Manchukuo. When the home shipper has no representative, the goods are imported by importing houses, either English or European, which sell the goods to Chinese wholesale dealers, generally on an indent basis, and the latter are entirely responsible for the distribution of the goods to the retailer. In the past various attempts have been made by the importing houses to establish direct connections with the local wholesaler or retailer, but in nearly all cases they have reverted to the old system of leaving distribution to retailers in the hands of the Chinese merchant. An important variation in this system of distributing piece goods has been the auction system which in recent years has declined in importance. At the present time only one auction per week is held, and it is believed in some quarters that the auction method has long outlived its utility. The cloths sold in the auction are all well-known brands, and they are sold without reserve. The prices made at the auction have a direct bearing on all selling prices throughout the country, as particulars of each week's auction are circulated throughout China. It is alleged that it is easier now to "bear" auction prices than it was, with the result that prices throughout the country are depressed. Another interesting feature in the distribution of Lancashire piece goods in the Chinese market is the *compradore* system. A *compradore*—nearly always a Chinese—is the link between the firm and its customers. It is his duty to introduce business and give confidential information. Moreover, in the past he guaranteed the full value of goods supplied to customers on his recommendations. However, in recent years the importance of the *compradore* has declined, owing to the greater ease in securing the necessary information about customers and markets. The Japanese and other non-English firms do not use *compradores*.

Japanese Methods

The main difference between the methods employed by this country and Japan seems to be that the Japanese keep in touch with the buyer better than the English houses, and that the Japanese keep large stocks in key positions on the spot. Japanese agents travel about the country, obtaining knowledge of market conditions, and the requirements of the people. To facilitate this, a school is maintained in

Shanghai where Japanese agents are taught Chinese, and Manchester also would do well to remember that Lancashire is not a universal language. The stocks carried by the Japanese distributing houses are standard lines, and not fancies, and it is alleged that Chinese merchants are often reluctant to place orders for Lancashire goods owing to the time which has to elapse between the placing of the order and the delivery of the goods. Moreover, the Japanese houses are said to be more willing to exchange information, especially about "shady dealers".

Undoubtedly the main cause of the loss of Lancashire's China trade must be attributed to price, and it is estimated that the handicap under which Lancashire greys and lower qualities of white shirtings labour, as against Japanese goods, is from 15 to 25 per cent, though in some cases the percentage margin has become even larger than this. Moreover, according to the Report of the British Economic Mission to the Far East, "it is not a case of price irrespective of quality in every instance." Japanese goods are more popular with Chinese dealers than Lancashire goods, as the former yield quicker sales and a larger margin of profit. The Chinese boycott following hostilities in Manchukuo hit Japan very hard, but this has already been relaxed to a considerable extent.

It has been stated that one of the great weaknesses of the system of marketing in China is the severe competition between the importers, enabling the Chinese dealers to play one firm off against another, and resulting in a great deal of wastefulness in bringing samples to the notice of the dealers. One of the causes of the excessive competition has been the indent system, which can be worked with a minimum of staff and capital, and thereby encourages an influx of small firms into the trade. Further, the relations between the importer and the domestic shipper are far from satisfactory owing to a great deal of suspicion on both sides.

Schemes for Reorganisation of Marketing

Various schemes for the reorganisation of the merchanting section have from time to time been proposed, but unfortunately have not met with much success. The details of three schemes are summarised below.

(i) The Eastern Textiles Association scheme, announced in November 1928, aimed at the experiment of doing everything from spinner to consumer at cost. (The Bradford Dyers' Association, which participated, actually worked at less than cost, taking as a basis the cost under an output much greater than was actually attained in the scheme.) Merchanting was done on a commission of 1 per cent, and goods were put on the market at prices which definitely competed with the Japanese. Unfortunately faulty technique—largely on the financial side—led to various mistakes being made which brought about the failure of the scheme and discredited it in the eyes of the rest of the industry, which did not look further than the results attained. In particular the Association failed to cover itself against Exchange fluctuations during the period of its operation. Further, the merchants neglected to take the silver factor into account, and the Shanghai Exchange also dropped. One interesting point which emerged was that it was not possible to dispense with the "yarn agent" who took 1 per cent between spinner and manufacturer. (See p. 70.)

(ii) The proposals embodied in the scheme of the Lancashire Textile Co-operative Society in March 1933 were that the Japanese and American marketing methods should be combined. Thus mixed packets of prints were to be put on the market along American lines (the purchaser of the packet taking the whole contents), while packets were also to be made of prints, bleached cloth, greys, etc., along Japanese lines. As in the case of the Eastern Textile Association, the goods were to be marketed at cost price, and any profit made put to reserve. The failure of the scheme was largely due to opposition by the merchants, and to the previous history of the Eastern Textile Association.

(iii) A scheme for direct sale of cotton piece goods in India was announced in October 1932. It involved selling direct to retail dealers, and cutting out merchant and middleman, by which it was estimated that a 20 per cent saving in cost could be secured. The scheme was formulated by Mr. K. H. Parker, of A. H. Parker & Co., Manchester. It was proposed to form the "Anglo-Indo Corporation" with a capital of £1 million, having its head office in Manchester, and six central branch offices in the main areas in India. The scheme aimed at the establishment of quotas among merchants on this side, as well as the sales offices in India referred to above, and the corporation was to invite all shippers interested in the Indian market to apply for quotas in the trade. Different cloths were then to be allocated to different firms by a special selection board, and any one kind of cloth was not to be allocated to more than one firm, so that internal competition among participating shippers would be avoided. A shipper selling one cloth through the corporation was not to be debarred from selling other lines through the usual channels. Financial support from the Government was stated to be needed to launch the scheme. The main criticism made against it at a meeting of merchants and shippers on

31st October, 1932, were (a) that Government support would be unobtainable, and (b) that the estimated saving of 20 per cent was too high. Actually, however, all these schemes had something of the right ideas behind them but were not quite fully enough worked out, lacked sufficiently wide support and above all the personnel and determination to make them a success.

The main problem in the merchanting section is that of jobs, and the merchant community is always on edge when any schemes of large-scale merchanting are discussed. Furthermore, as many merchants do not depend on the banks for credit to finance their business, reorganisation of marketing cannot be secured by methods applicable, for instance, to the spinning section. The big finishing combines which are at present engaged in developing their own marketing organisations are dependent on the merchants until these organisations are more fully developed, and are therefore very unwilling to take any steps which might offend them. Such was the dislike of and distrust for the Eastern Textiles Association scheme that when the Association was wound up, the "chop" (Mandarin, Boy and Fish) under which large sales had been made in the China market, only realised about £50.

It has been contended by several of the Lancashire Chambers of Commerce that the shipping, merchanting and finishing end of the industry has had a much bigger say in matters relating to the industry as a whole than the spinning and manufacturing end, and that the merchants have not sufficiently considered the producers. The spinners have maintained that the merchants are out for profit alone and that they are too often prepared to push the goods from which they can obtain the largest margin of profit without regard to other considerations. While it is impossible not to sympathise with the merchants to a certain extent, closer co-operation with the spinners and manufacturers is essential. In February 1934 it was proposed that a conference should be held between the various Chambers of Commerce with a view to promoting this.

(9) LABOUR

Summary

(1) About 80 per cent of the workers in the cotton industry are localised in Lancashire. They are divided approximately equally between spinning and weaving. In spinning the women constitute about 60 per cent, and in weaving 68 per cent of the total number of insured workers. Over a quarter of the women employed are married.

(2) The industry has suffered from acute unemployment, particularly since the end of 1929, and the greatest percentage of unemployment is to be found among operatives between the ages of 18 and 24. Unemployment is more severe among women than men. In some of the chief towns over 60 per cent of the insured persons are cotton operatives.

(3) Short time has been worked on an organised basis during the depression, though in the weaving section it has been run on a different basis from that in the spinning section. The working of short time has been partly responsible for the immobility of labour within the industry.

(4) In spite of the depression there has been a considerable influx of new entrants into the industry.

(5) There is little co-ordination between the different trade unions, of which there are a very large number, mostly local. Such co-ordination as there is achieved through loose federations in which the local bodies retain a considerable degree of autonomy.

(6) Real wages in the cotton industry were greater in 1931 than in 1924, although average wage rates were less.

(7) The average weekly wages per operative are highest in the United States, and second highest in England; while they are lowest in China and second lowest in India. The American and British operatives are more efficient than the Japanese, and nearly four times as efficient as the Indian.

(8) Wages in the United Kingdom compared with prices have been relatively rigid. Labour costs constituted about 30-35 per cent of total c.i.f. costs of cloth in 1933.

(9) Without taking into account the labour which will be displaced by technical changes, it is estimated that surplus labour amounts to approximately 90,000 workers, of whom 50,000 are engaged in the spinning section and 40,000 in the manufacturing section. The effects of technological unemployment have been largely delayed owing to lack of capital for installing up-to-date plant. Technical improvements likely to affect employment are high-draft spinning, high-speed winding and warping, and automatic looms.

(10) The 1932 labour disputes and the agreements reached are discussed with particular reference to the more-ooms question.

(11) The conciliation machinery under the agreements is an important step forward in the industrial relations of the industry.

(12) The introduction of practices contrary to the terms of the more-ooms-per-weaver agreement has created a serious labour situation. The wages paid by employers breaking the agreement are much below those paid by firms working according to the agreed terms. The fear of further unemployment has contributed to inducing operatives to break the agreement.

(13) These breaches of the more-ooms agreement have resulted in the unions refusing to sanction an extension of the system, and the manufacturers have replied by demanding a further decrease in wages and an alteration to the pick basis for the payment of wages. This latter question—reorganisation of the basis of payment and scrapping of the old lists—is long overdue, but it is very undesirable that it should be mixed up with questions of wage reduction.

(14) The alternative methods of enforcing agreements are discussed:

- (1) Legalisation
- (2) Trade Board.
- (3) Control Board.

(1) **EMPLOYMENT** In July 1933 there were 499,980 insured workers in the cotton industry in the United Kingdom. Approximately 80 per cent of these are located in Lancashire. In the spinning section there were 244,000 insured workers (49 per cent of the total), consisting of 98,840 males (40 per cent), and 145,160 females (60 per cent). In the manufacturing section there were 255,980 (51 per cent of the total), of whom 80,920 were males (31 per cent), and 175,010 were females (69 per cent). It will be seen that women considerably outnumber men, and the ratio between females and males in the whole industry is approximately 16 to 9. According to the Census of Population of 1921, 28 per cent of the females employed in the cotton industry were married, as compared with 14 per cent for the average of all occupations in England and Wales.

Unemployment

The industry has suffered from acute unemployment during the depression, and the table on page 78 shows the percentage of insured workers unemployed, permanently and temporarily, for the months March, June, September and December in the years 1924-33.

Unemployment of Juveniles and Females

The greatest percentage of unemployment is to be found among cotton operatives between the ages of 18 and 24. In February 1931 this group accounted for approximately 26 per cent of the total unemployment.* The younger operatives have consequently found it increasingly difficult to achieve promotion, a fact which has far-reaching social implications. In spinning, big and little piecers, in the post-war years, have found promotion to the position of spinners more difficult than it was in pre-war years, whilst in weaving the young and inexperienced weaver is often the first to be dismissed following any contraction in output.

Unemployment has been more severe among female than among male cotton operatives. In July 1933 81,591 females and 49,889 males were registered as unemployed, namely 16.8 per cent and 10 per cent respectively of the total number insured. Among the unemployed males, approximately 10 per cent are engaged in the card and blowing rooms, about 50 per cent in spinning, and

* According to an enquiry undertaken for the Royal Commission on unemployment.

80 per cent in weaving. Among the unemployed females, approximately 40 per cent are weavers, and 20 per cent are engaged in the card and blowing rooms.

About one quarter of the unemployed in the cotton industry are concentrated in the areas round Burnley and Blackburn, while the areas round Oldham and Bolton account for another quarter. In these four areas approximately 70 per cent, 60 per cent, 61 per cent, and 45 per cent respectively of the insured persons in all industries are engaged in cotton. It will thus be realised that the unemployment situation in these four areas is very grave.

Short Time Working and Immobility of Labour

During the depression short time has been run on an organised basis. In spinning, the normal practice is for a mill which cannot keep all its plant running full time to close down completely for a few days in the week. Short time in spinning means full days of employment succeeded by full days of unemployment. In the preparatory processes between spinning and weaving (beaming and winding) a worker may be employed for half a day and then sent home. In the weaving section under-employment is run on a different basis. Generally a weaving shed runs for 48 hours per week, or not at all, and reduction in output is secured not by reducing the number of employees but by reducing the number of looms per operative.

This policy of organised under-employment has been acceptable both to employees and employers. But the working of short time, coupled with the fact that the industry employs such a large percentage of married females, has undoubtedly been partly responsible for the immobility of labour in the industry, and has maintained in it a larger body of workers than is required. The significance of this fact is seen from the table below, which shows the number of registered cotton operatives, the average monthly production, as measured by the amount of raw cotton delivered to mills, and deliveries per registered cotton operative. The figures given for deliveries per registered cotton operative must only be regarded as showing the general trend, as, owing to frequent changes in the Unemployment Insurance Acts, the number of registered operatives in the different years is not strictly comparable.

U K NUMBER OF INSURED COTTON OPERATIVES AND DELIVERIES OF RAW COTTON TO MILLS

	No of insured cotton operatives	Deliveries of raw cotton to mills (Average monthly) Million lbs	Deliveries per registered cotton operative (Average monthly) lbs
1925	576,720	189.1	242.6
1926	579,190	119.8	207.4
1927	570,110	185.8	287.7
1928	558,970	125.8	226.1
1929	554,790	124.5	224.4
1930	564,090	91.8	161.9
1931	550,110	94.5	171.5
1932	517,950	108.4	199.6
1933	499,930	116.9	233.8

The decline in the deliveries of raw cotton per registered cotton operative shows clearly the effect of the rigidity in the number of cotton operatives. The decline in the number of operatives between 1931 and 1932 is due to the reduction in the number of new entrants, and also to the Anomalies Act.

U.K * PERCENTAGE OF REGISTERED COTTON OPERATIVES UNEMPLOYED 1924-1988

	Estimated No of insured cotton operatives at July	March			June			September			December		
		Wholly Unemployed	Temporarily Unemployed	Total	Wholly Unemployed	Temporarily Unemployed	Total	Wholly Unemployed	Temporarily Unemployed	Total	Wholly Unemployed	Temporarily Unemployed	Total
1924	562,890	—	—	15.4	—	—	15.2	—	—	14.0	—	—	7.0
1925	576,720	—	—	7.2	—	—	8.7	—	—	10.2	—	—	6.7
1926	579,190	8.0	6.6	9.6	8.6	21.4	25.0	4.0	20.2	24.2	4.1	9.1	18.2
1927	570,110	2.7	8.2	5.9	2.5	4.5	7.0	2.9	6.2	9.1	8.8	6.7	10.0
1928	558,970	8.8	5.6	9.2	4.5	8.4	12.9	5.9	8.4	14.8	5.8	5.8	11.1
1929	554,790	4.9	6.6	11.5	6.1	7.6	18.7	6.9	5.8	12.7	7.8	7.1	14.4
1980	564,090	11.0	16.1	27.1	15.9	26.8	42.2	20.5	28.9	44.4	24.7	22.7	47.4
1981	550,110	24.7	11.8	86.5	25.8	14.8	89.6	26.7	17.9	44.6	21.8	6.1	27.4
1982	517,950	17.1	6.8	28.4	16.0	14.4	80.4	17.9	14.9	82.8	15.9	7.4	28.8
1988	499,980	15.8	10.7	26.0	15.5	8.8	24.8	14.4	7.9	22.8	18.6	6.1	19.7

* Great Britain and Northern Ireland

New Entrants

In spite of the depression there has been a considerable number of new entrants into the industry since 1928/24. Although, as it is to be expected, there has been a decline in the total, the decline has been less severe in the case of boys and girls than in the case of adults. Thus the very unsatisfactory position has developed of labour still entering an industry which is overcrowded. In certain areas of Lancashire the cotton industry is, in fact, still absorbing nearly 50 per cent of those leaving school. It is estimated that in 1928/24 there were 88,446 new entrants into Unemployment Insurance

in the cotton industry. Of these, 941 were men, 9,861 boys, 6,897 women, and 16,247 girls. In 1980/81 the number of new entrants totalled 16,894, of whom 805 were men, 5,882 boys, 283 women, and 10,924 girls.

(2) **TRADE UNIONS** In 1988 there were 178 trade unions in the cotton industry with a membership of 271,858. In 1926 there were 172 unions with a membership of 866,592, and in 1931, 173 unions with a membership of 889,449 (62 per cent of the total number of insured workers). The basis of trade unionism in the cotton industry is the local union, and there is little co-ordination between the different branches. This lack of co-ordination is probably due to the great variety in local conditions and traditions. The officials of the Trades Union Congress have at various times advised the local unions in a particular section of the industry to amalgamate, but there has been no response from the unions themselves. It is claimed that the opposition to amalgamation has not come from the paid officials of the local unions, but from the rank and file. The little co-ordination which does exist is achieved through loose federations, in which the constituent bodies retain a good deal of autonomy. The federations are as follows: Beamers, Twisters, and Drawers, Card Blowing and Ring Room Operatives, Loom Overlookers; Spinners and Twiners, and Weavers. There are a large number of local organisations which are not affiliated to their appropriate federations.

(8) **EARNINGS.** In 1981 the Ministry of Labour conducted an enquiry into the earnings and hours of operatives in various industries. As regards the cotton industry, in the large firms employing 68,772 men and 121,992 women, the average wages paid in October 1981 were 45s 8d. for men and 27s 8d. for women. In the small firms, employing 222 men and 140 women, the corresponding rates of wages were 51s. 1d. and 24s 8d. In 1924 the average wage for men in large firms was 47s. and for women 28s 8d.; and the decrease in earnings in 1981 as compared with 1924 is due both to the increase in short time worked and to a fall in wage rates. In 1981, however, real weekly earnings for men, measured by the Ministry of Labour Cost of Living Index, was approximately 6.5 per cent greater than in 1924, while those for women were 7.2 per cent greater.*

* Note — Figures used for above calculation
 Cost of living (monthly average) 1924 174.9
 1931 157.3

The Ministry of Labour made an investigation into breaches of the "more looms to a weaver" agreement in which particulars were obtained concerning the wages of 12,416 operatives employed by forty-three firms in Burnley, Harle Syke, Nelson, Barnoldswick, Blackburn, Darwen and Preston. Of these 88 per cent were males and 62 per cent were females. The average earnings of adult men were 48s 8d., and of adult women 37s 2d. One-fourth of the men earned 87s 9d. or less, and one-fourth 58s 6d. or more. One-fourth of the women earned 31s. or less and one-fourth 43s 8d. or more. The average weekly full-time earnings of youths and young women aged 18 and under 21 years, were 29s 10d. and 28s 10d. respectively. The average wages of male and female weavers paid by the Uniform List on four looms were 41s 9d., and on three looms 31s 10d. One-fourth earned 87s 4d. or less and one-fourth 44s. 9d. or more. The average earnings of the men on four looms were 42s 10d., and those of women were 41s 4d. The average wages of weavers paid by the More-Looms List on six looms were 48s 2d., and on five looms 88s. 1d.

The highest-paid group is that of loom overlookers or tacklers, and the average earnings of this group in the firms investigated were 88s 11d. per week. The average earnings of tape sizers amounted to 71s 8d., while those of drawers-in and twisters-in were 65s 9d. and 55s 8d. per week respectively. It was found that cloth-lookers earned 45s. 10d. per week, beam warpers 57s. 9d., cop-wanders 80s 10d., loom-sweepers and oilers 86s. 2d.; and warehouse workers 89s. 5d.

Labour Costs in Relation to Total Costs

Labour costs as a proportion of total costs vary from cloth to cloth, and also vary with the price of raw cotton. The following table, based on a costing of typical cloths taken in 1983, shows the proportion of labour costs to total c i f. costs.

U.K. LABOUR COSTS AS PROPORTION OF TOTAL COSTS*

	Heavy Grey Shirting 36 in. , 40 yds. 64 x 62, 22/22	Bleached Shirting 36 in. , 40 yds. 76 x 80, 32/30	Discharge Print 27 in. , 100 yds. 60 x 54, 42/42
Total c i f Costs .	165.75	178.78	862.40
	100%	100%	100%
Total Labour Costs .	52.18	61.57	126.87
	31.5%	35.4%	35.0%

* Liverpool cotton futures taken at 6 ood. per lb.

International Comparison

According to the Mitsubishi Economic Research Bureau, the average weekly wage per operative is highest in the United States, and second highest in England. The following table, compiled by this Bureau in 1933, compares spinning labour costs in different countries.

INTERNATIONAL COMPARISON OF COTTON SPINNING LABOUR COSTS, 1933 (FOR 40's)

Country	Wages per week†	No of workers per 1,000 spindles	Wages per week per 1,000 spindles†	Throughput per week per 1,000 spindles	Wages per bale†	Index of wages per bale (Japan=100)
U S A	£ 3 11 9	3 4	£ 12 3 9	Bales* 2 4	£ 5 1 8	876
British India	10 8	15 0	8 9 0	2 4	8 10 5	260
Netherlands	1 9 9	5 5	7 17 9	2 3	8 8 4	254
England	2 0 3	4 0	7 7 6	2 3	3 4 4	238
Switzerland	1 8 8	5 0	7 3 5	2 3	8 2 3	230
France	1 4 11	5 5	6 15 2	2 4	2 16 4	208
Germany	1 6 7	4 5	5 19 10	2 3	2 12 0	192
Italy	1 2 7	5 5	6 3 11	2 4	2 11 7	191
Czechoslovakia	1 0 6	5 5	5 12 10	2 3	2 8 11	181
China	7 7	8 9	3 7 5	2 3	1 4 2	89
Japan	11 9	6 1	3 12 6	2 7	1 7 1	100

* 400 lbs

† Converted from yen at mint par

It will be seen that the lowest wage rate countries are China and India, but wages paid per 1,000 spindles in the latter country, owing to the inefficiency of the native operative, are higher than the corresponding wages paid by all the other countries, with the exception of the U S A. The American and English operatives appear from the figures given in the above table to be the most efficient, as in these two countries the number of workers per 1,000 spindles are 3 4 and 4 0 respectively, as compared with 5 5 in several European countries, 6 1 in Japan, and 15 in India.

Wages in Relation to Prices

Wages (as well as interest charges and other costs) have been relatively rigid during the post-war period compared with prices. The following table compares movements in wages with the Board of Trade index for the prices of American Cotton Yarns and Cotton Cloths.

U K WAGE RATES AND PRICES OF YARN AND CLOTH

	Percentage added to list prices*	%	American Cotton Yarns Board of Trade Index Number (Monthly average)	Cotton Cloths Board of Trade Index Number (Monthly average)
1913	5	100	100 0	100
1924	95	185 7	247 6	234 1
1925	95	185 7	210 6	208 1
1926	95	185 7	157 8	167 6
1927	95	185 7	152 6	164 3
1928	95	185 7	161 5	169 3
1929	82 5	173 9	152 3	165 6
1930	82 5	173 9	115 8	137 3
1931	82 5	173 9	93 0	116 4
1932†	68 5	160 5	92 7	115 9
1933†	68 5	160 5	93 3	116 0

* The percentages from 1924 onwards include an enhancement given in 1919 in compensation for the reduction in hours from 55½ to 48 per week. These percentages therefore exceed the actual increase over the pre-war weekly wage rates.

† This percentage is for spinning. The percentage for weaving was 67 (Burnley).

From the above table it will be seen that in 1924 prices had risen more than wage rates as compared with the respective 1913 figures. From 1925 the fall in prices was much greater than the fall in wage rates, in 1932, when the price of yarn had fallen to 92 7 per cent of the pre-war level, wage rates were 60.5 per cent greater than the 1913 figure.

(4) **LABOUR SURPLUS.** The technical changes which have been introduced during the post-war years have not to any appreciable extent influenced the demand for labour, but the experiments which have been carried out in recent years are likely to affect the output per head, and hence the quantity of labour required. No accurate estimate, however, can be made of the quantity of labour which will be displaced by the introduction of new methods, such as high-speed spinning, more looms per weaver, etc., especially as it is hoped that the resultant reduction in costs will strengthen the competitive position of the industry and lead to re-employment.

Technological Unemployment

Although many minor improvements have been introduced in the more efficient mills, the improvements which will affect labour most are the following: (1) The introduction of high-draft spinning, (2) the installation of high-speed winding and warping machinery; (3) the introduction of the more looms per weaver system, (4) the use of automatic looms in place of the ordinary looms.

(i) Spinning

As is shown on p. 95, there have been several factors working against the introduction of high-draft spinning on any large scale, and it is generally believed that the established system of "low-draft" spinning will not be replaced to any considerable extent for the time being. The introduction of high-draft spinning would not only cause a reduction in the total number of operatives for any given output, but would also cause a change in the character of the labour. As is shown below, in mule spinning mills the number of males and females employed are approximately equal, while in ring spinning mills females predominate. Therefore the male spinners in a mule spinning mill, which changes over to high-draft spinning by scrapping its mules, become redundant, and the extra demand for female labour is less than the number displaced. In the case of a mill which adapts high drafting to its original mules, and in the case of a mill with low-draft ring spindles which adopts high drafting, the only important change would be a reduction in the number of female card-room operatives. The following table shows the labour requirements of a mill before and after changing from mule spinning to high-draft spinning.

LABOUR REQUIRED IN MILL WHICH CHANGED FROM MULE SPINNING TO HIGH-DRAFT SPINNING

	Old System		New System	
	Males	Females	Males	Females
Card Room	20	115	20	88
Spinning Room	150	—	4	122
Subsidiary	10	5	10	1
Total	800		240	

(ii) Winding and Beaming

Until recently little attention has been paid to winding and beaming, but technical research has shown that the older methods have detrimental effects upon the quality of the yarn. The new methods, which have been widely adopted in other countries, are of three main types:

- (1) Winding on to parallel cheeses
- (2) Winding on to cones and warping from the nose
- (3) Winding on to bottle bobbins and warping from the nose

In this country winding and beaming are still done according to the old methods, but should any of the new methods be introduced, labour displacement would result, particularly with the Barber-Colman system. The following table, taken from the University of Manchester's "Survey of the Lancashire Area," shows the amount of labour which would be required in a typical mill with a standard weekly output for five different systems of preparation, ranging from the less to the more modern.

LABOUR REQUIRED IN A TYPICAL MILL FOR FIVE DIFFERENT SYSTEMS OF PREPARATION

System	Winders	Beamers	Creelers	Mechanics	Total
1*	45	11	—	—	56
2†	45	4	8	—	52
3‡	86	4	1	—	41
4§	28	2	2	—	32
5¶	8	8	2	1	14

* Lancashire slow speed system, winders averaging 40 spindles each, beamers doing own creeling

† Machines same as in system (1) Winders averaging 40 spindles each, but beamers each attending more than one frame and receiving help for creeling

‡ High speed warping from bottle bobbins Winders averaging 50 spindles, beamers 2 frames per operative with help or creeling

§ High speed cone system Winders averaging 25 heads, beamers 2 frames per operative with help for creeling

¶ Barber-Colman System

It will be seen that only systems 3, 4 and 5 cause any serious reduction in employment.

(iii) Weaving

The spread of the "more looms per weaver" system is likely to create a more severe labour surplus problem than the introduction of either high-draft spinning or of high-speed winding and warping. The opposition of the Trade Unions to the introduction of the system was partly due to the displacement of labour which it would produce and partly because they held that some manufacturers would be unwilling to honour the new agreement. Under the "more looms per weaver" system the output per weaver is, of course, greater than that under the old four looms per weaver system. Under the "more looms per weaver" system, however, the weaver is engaged entirely on skilled duties, and is unable to perform such unskilled work as sweeping, weft and cloth carrying, cleaning of looms, etc. Therefore, while reducing the number of weavers employed (unless, of course, the consequent reduction in costs causes a proportionately greater increase in output) the "more looms per weaver" system creates employment for a certain amount of unskilled labour. No accurate estimate, however, can be given of the surplus which will be created, as it will depend largely on the extent to which the system is introduced, the nature of the mill and the cloth, and other variable factors.

In the survey conducted by the University of Manchester referred to above, an estimate is given of the number of weavers employed in a shed with 1,250 looms, producing a standard "Bleacher," 84 inches wide, under a "four looms per weaver" system, and under an "eight looms per weaver" system (non-automatic looms)

LABOUR REQUIRED FOR WEAVING-SHED WORKING 4 LOOMS SYSTEM AND 8 LOOMS SYSTEM

	4 looms system	8 looms system
Weavers		
Male	107	101
Female	200	49
Learners	11 (with 2 looms)	1 (with 6 looms)
		11 (with 4 looms)
Sweepers	} Not required on 4 looms system	} 25 Females 25 Females 7 Males
Weft Carrying		
Cut Carrying		
Total	318	219

Although the Burnley experiment mentioned on p 83 was on an eight-loom basis, under the more looms agreement six- and not eight-loom working was, of course, provided for

The introduction of the "more looms per weaver" system will therefore create a further unemployment problem in the weaving towns, especially in those which cater for the non-speciality trade. For example, in Burnley, which specialises in "Printers," the more-loom system could be easily adopted, and assuming that 80,000 looms (approximately one-third of the total number in the town) were turned over to the eight-loom system, the labour required for the same output has been estimated as follows

Estimated labour required for 80,000 looms on 4 looms system ..	7,700
Estimated labour required for 80,000 looms on 8 looms system (8,900 weavers; 1,800 weft and cut carriers, sweepers, oilers, etc)	5,200
Redundant labour, if output remained the same	2,500
Per cent reduction in labour	82.5

The effect of the six-loom system is, of course, less severe . normally about one-third of the weavers lose their jobs, but the percentage reduction in the total labour in the shed is considerably less

(iv) Automatic Looms

Up to the present, relatively few automatic looms have been introduced in Lancashire, and it is estimated that only about 60 sheds have automatics and about 80 sheds automatic attachments. The main reasons for the slow introduction of automatic looms are the specialisation of spinning and weaving, the diversified character of the goods produced, the difficulties encountered in working double and treble shifts, and the high capital cost of the installation combined with the difficulty in raising new capital. Increased standardisation, and, with the reorganisation of the industry on a profit-earning basis, greater facility for the finance of new plant should give encouragement to the installation of automatic looms. The following illustration shows the labour required by a shed weaving a standard "Bleacher" 84½ inches wide working first on a four-loom system and then on an automatic-loom system.

LABOUR REQUIRED FOR WEAVING SHED WORKING FOUR-LOOMS SYSTEM AND AUTOMATIC LOOMS SYSTEM

	Four-loom system	Automatic looms system (Bobbin changers)
Weaving Shed Labour		
Male Weavers	107	25
Female Weavers	200	—
Seamers	11	10
Smash Piecing (females)	None	16
Sweeping and Oiling (")	"	25
Battery Filling (males)	"	81
Cut and Weft Carrying (")	"	7
	818	114

Effect of redundant plant

The contraction in the plant of the industry will necessitate a contraction in the labour force. On the basis that 14 million spindles and 150,000 looms are redundant, it is estimated that the labour surplus, without taking into account the effects of any technical changes within the industry, amounts approximately to 90,000 workers, of whom 50,000 are engaged in the spinning section and 40,000 in the manufacturing section. With this large labour surplus, the industry must pursue an organised policy with regard to settlement and reabsorption elsewhere, otherwise very grave social consequences will arise. Undoubtedly some restriction in recruitment will be necessary, and it is suggested that the first step in this direction should be the withdrawal of juveniles up to 18 years of age for part time. The displacement of labour, as far as possible, should be so arranged that the social loss is reduced to a minimum.

(5) LABOUR DISPUTES. In 1929 the Burnley manufacturers, in agreement with the trade unions, began at about six mills to work an "eight looms per weaver" system on an experimental basis. Weavers received at first a wage of 50s. per week, and were relieved of the duties of sweeping, cleaning, and oiling, etc. It was found that the introduction of the eight looms system for Burnley "Printers" and other cloths resulted in a saving of 20 per cent in weaving wages, and from 2 per cent to 7 per cent on the cost of the finished product (including raw materials and overheads). It should be noted, however, that with the fall in the price of raw cotton, weaving wages as a percentage of total costs are very much higher at present than in 1929.

Beginning of More-Looms dispute

With the success of the Burnley experiment the employers were anxious to come to some "county" agreement on the question with the trade unions. The unions, however, demanded not only higher rates than those suggested by the employers, but also a minimum wage and a "fall back" wage to counteract under-employment. The representatives of the employers and operatives made repeated attempts to reach an agreement on the question, but they met with no success. Following on this impasse several Burnley employers started working the "eight looms per weaver" system contrary to the agreement with the trade unions. In January 1931 a lock-out of the whole weaving section was declared in support of several Burnley employers whose operatives had been called out on strike by the Weavers' Amalgamation in an attempt to compel those employers to discontinue the eight-loom system. In February 1931, however, there was a general resumption of work in the weaving section on the old system.

Wage Reduction in the Weaving Section and the 1932 Strike

Nevertheless the industry was not to escape from labour disputes for long, for in July 1932 a strike was called in Burnley by the Burnley Textile Trade Federation as a protest against the proposed wage cuts of $12\frac{1}{2}$ per cent. At the same time negotiations were commenced between the Northern Counties Textile Trade Federation and Cotton Spinners and Manufacturers' Association for a county reduction in wages. The employers started by asking for a cut of 30 per cent off the lists, equivalent to an actual wage reduction of 8s 3d in the £ (16.3 per cent), which the operatives naturally rejected. The employers then put forward a lower claim, believed to have been a $12\frac{1}{2}$ per cent wages cut (2s 6d in the £), while the operatives put forward an offer of 1s (5 per cent). In addition, however, the employers insisted on a reduction in the percentage additions paid for weaving the finer grades of cloth, apart from any reduction made off list rates. Although a breakdown was expected when negotiations were resumed on July 29th, after the operatives' representatives had consulted their different executives, this did not take place. The operatives, however, absolutely refused to go beyond their final offer of 70 per cent on the standard list prices (about 1s 8d in the £, or 6.2 per cent reduction) although the employers had indicated that if the operatives could guarantee the possibility of a settlement they would amend their figures further in the operatives' favour.

After further meetings between employers and operatives, negotiations finally broke down on August 9th, 1932, ostensibly on the question of reinstatement of operatives discharged as a result of the more looms system, which was alleged by employers to be a roundabout way of attacking the more looms question. There appears to have been a considerable measure of justice in the operatives' demands regarding reinstatement. Their point of view was that in all cases where operatives withdrew their labour in defence of the wages agreement, their action was a right one, whereas employers who broke the agreements were not in a justifiable position. Operatives who withdrew their labour on the demand of the unions were in a large measure fighting the cause of employers who were desirous of honouring the agreements, and in the early stage the Chairman of the Cotton Spinners' and Manufacturers' Association was alleged to have told the unions that they could take their own action against employers breaking the agreements. Thus they did, and hence the reinstatement problem.

The strike started on August 27th, and by the end of the month it was estimated that there were about 150,000 operatives on strike. On September 5th, 1932 the Ministry of Labour intervened by calling a meeting of the two sides, and on September 8th there was a joint meeting between the Cotton Spinners' and Manufacturers' Association and the Northern Counties Textile Trade Federation.

Terms of Settlement and the Origin of the More-Looms Agreement

For the discussion of the matters in dispute, the subjects were placed in order in the following agenda:

- (1) Re-establishment of collective bargaining
- (2) Machinery to ensure honouring of any agreement reached
- (3) Wages
- (4) Reinstatement

On 16th September it was announced that progress had been made on the first two points on the agenda. A conciliation committee with an independent chairman nominated by agreement between the parties, or alternatively by the Ministry of Labour, with two independent members, one nominated by each side, was agreed on. Wages were discussed from 17th to 21st September without any definite

result, a difference of 8d in the £ separating the two sides. It was suggested that a stiffer attitude adopted on the part of the employers was due to a noticeable tendency on the part of the strikers to return to work. On 23rd September, however, an agreement on the wage cut was reached—namely, 15½ per cent off list prices, or 8.49 per cent off earnings of the general body of workers (1s 8½d in the £). The method of reaching agreement is indicated by the fact that on the previous day the employers had reduced their demands to 2s and the operatives were offering 1s 6d. Unfortunately this is an obvious encouragement to the customary Lancashire practice, followed by both sides, of placing original demands much too high.

Apart from the actual wages question, provisional agreements were made on the questions of reinstatement and more looms per weaver. With regard to the former, the central body of employers agreed to recommend their local associations, in a spirit of goodwill, to persuade all their members, as well as the firms immediately concerned, to offer employment as speedily as possible to operatives who had been displaced. Unfortunately, however, the process of reabsorption has in practice been slow, and this has given rise to much subsequent bitterness. With regard to the more-loom question, the main points in the provisional agreement were

1) That the firms working on this system should not make any reduction on the prices they were at present paying or were paying before the strike, (2) that when a county agreement was reached the strike was to be called off at all mills where those agreements were observed, (3) that the matters in dispute on the question of prices and conditions for the more looms per weaver system should be referred for consideration by the parties affected under the procedure provided by the joint rules as amended, (4) that no further extensions of the more-loom system be attempted until that procedure had been completed, every endeavour to be made to complete the procedure within a period of two months from the date of the signing of the agreements.

Wage reduction in the Spinning Section

Following on the breakdown of the negotiations on wage reduction in the weaving section, and the decision of the Weavers' Amalgamation in favour of strike action, the Federation of Master Cotton Spinners' Association decided on 12th August, 1932 to recommend a demand for a wage reduction of 25 per cent off the lists, equal to a cut of 2s 9d in the £ on actual earnings (13.69 per cent). On 16th August one month's notice was given to operatives in the spinning section to this effect. The operatives rejected the employers' proposals. Discussions, however, continued until 19th September, when a deadlock was reached and the delegates adjourned to consult their organisations. On 26th September, however, following the agreement for a wages cut of 1s 8½d. in the £ in the weaving section, it was decided to resume negotiations with a view to adopting a similar cut in the spinning section. The employers offered to reduce their claim to this sum, but the operatives refused to increase their previous offer of 10d unless the employers agreed to restore the 48-hour-week agreement, which they had abrogated at the end of 1931. This the employers refused to do, and in October the Master Spinners' Federation, with a wide measure of support both of members and non-members, decided to post notices of a reduction of 15½ per cent (the same as agreed in the weaving section) to take place from the making up in the week beginning 17th October. On 18th October a joint meeting was held under Mr. F. W. Leggett's chairmanship, when it was agreed to extend the notices to 22nd October. On 15th October it was announced that an agreement had been reached with regard to the 48-hour week, namely that:

"The parties are agreed upon the principle of the restoration of the 48-hour week. They also agree that the circumstances of the industry require that the maximum production should be secured. They agree, therefore, to discuss and settle by the usual procedure, supplemented by the additional conciliation machinery, the means by which working hours may be made as fully effective as possible."

On 17th October difficulties were encountered with regard to the incidence of alterations in wages, and it was agreed that

"On a settlement of the wage claim being reached, a joint conference between the Federation of Master Cotton Spinners' Association and the operatives' unions shall take place without delay to consider (1) such claims to exceptional wage rates as may be submitted by either side, and (2) to review anomalies in regard to working conditions, with a view to their settlement by the usual procedure, supplemented by the additional conciliation machinery."

On 22nd October an agreement was reached providing for a cut of 1s. 6½d. in the £. Under a later agreement, however, reached in April 1933, big piecers employed with operative spinners on mules, chiefly in the Oldham and Bolton district mills, received back the greater part of this cut.

Their wages were increased by 2s a week, and in addition they received four weeks' allowance of the increase as a retrogressive payment. It is estimated that the weekly wage of a big piecer now ranges from 26s to 34s.

Terms of Agreement, Strike and Ratification

The main terms of the 1932 agreement (apart from the restoration of collective bargaining, restoration of the 48-hour week, and setting up of the new conciliation committee already mentioned) were a reduction of 14 per cent on the standard price lists for piece rates, which in the case of operatives then paid $82\frac{1}{2}$ per cent on standard lists reduced this figure to $68\frac{1}{2}$ per cent. This reduction corresponded to one of 7.67 per cent on current wages, and the new rates were to be paid from Monday, 31st October. Rates had stood at $82\frac{1}{2}$ per cent of standard since Mr Justice Swift's arbitration award of 1929, which effected a reduction of $12\frac{1}{2}$ per cent.

The Operative Spinners' Amalgamation, however, decided by a large majority not to ratify the agreement, but to take a ballot of operatives, the executives recommending acceptance of the terms as being the best possible to be obtained. Meanwhile, notices having been posted some time previously, the strike had spread to about 170,000 operatives by 31st October. Following the ballot, when the 80 per cent majority necessary for the continuance of the strike was not obtained, an official joint statement was issued by the Operative Spinners' Amalgamation and the Cardroom Workers' Amalgamation to the effect that they were willing to ratify the agreement of 22nd October referred to above.

The More-Looms Agreement

After the settlement of the dispute in the spinning section on 22nd October, 1932 and the establishment of the conciliation organisation, an attempt was made to bring about settlement of the "more looms per weaver" question. The establishment of the conciliation committee first of all had the effect of bringing together the Cotton Spinners' and Manufacturers' Association and the Weavers' Amalgamation on 28th October, 1932, and inducing them to discuss the matter between themselves rather than submit it to the newly formed committee. A sub-committee, with eight representatives from each side was appointed, and started work on 31st October.

After numerous discussions an agreement was ratified by the employers and the operative organisations in December 1932, although there was some opposition from members of both organisations. The full text of the agreement is long and complicated, but the following are the salient points.

(1) The new system will enable a weaver of average ability to earn 41s per week when employed for 48 hours on six running looms weaving standard cloth.

(2) When the weaver under this system is employed on only four or fewer looms he shall be entitled to a "retentive" wage of not less than 28s a week.

(3) Looms are to be run $47\frac{1}{2}$ hours a week, and not more than 20 per cent of the total number of looms in a shed working on the more-loom system are to be run by weavers regularly running less than six looms. Auxiliary labour will be provided for some of the cleaning and cloth carrying, but the weavers will clean their own shuttle boxes and spindles.

(4) The basis of the price list under the system is 1s $5\frac{1}{2}$ d per 100,000 picks of the loom, and the agreement was only applicable to the plainer cloths.

(5) Loom speed to be reduced by $7\frac{1}{2}$ to 10 per cent below the normal speed for four looms.

In addition to these terms it was decided at Blackburn on 23rd December, 1932 (1) that priority of employment should be given to operatives displaced by the six-loom system, and (2) that special staffs should be appointed for cleaning and waste-carrying under the new system.

Conciliation Machinery

In the agreements concluded both in the manufacturing and spinning sections important provisions were made for the establishment of conciliation machinery. Even before the establishment of this machinery notices could not be posted until the matter in dispute had been discussed by a joint committee of employers and operatives. Under the terms of the new agreement, when a question in dispute has been discussed at such a joint meeting and no agreement has been reached, a Conciliation Committee (consisting of not less than four and not more than six, from each of the parties to the dispute) is appointed. The Chairman is an independent person, nominated either by agreement

between the parties or, alternatively, by the Minister of Labour, and he is chosen for a definite period. He is assisted by two independent members (one appointed by each side), who also are chosen for a definite period. When direct negotiation between employers and operatives has failed, and the Conciliation Committee has also failed to bring about a settlement, the Chairman, after consultation with the independent members, has power to make a recommendation, and if he is invited in writing by both sides, he has authority to make an award. It was agreed that the provisions for the Conciliation Committee were to remain in operation for three years. After this period they can be terminated on six months' notice being given by either side.

Mr. Charles Doughty, K.C., was nominated chairman: the employers' nominees are Sir F. J. C. Pole (spinning section) and Mr. W. S. Watson (weaving); while the operatives' nominees are Mr. Arthur Pugh (spinning section) and Professor R. H. Tawney (weaving section). The conciliation machinery has already been used on two occasions in the dispute at the Wren Nest Mills, Glossop, over the question of exceptional rates, and also in the case of the claim made by the Operative Spinners' Amalgamation for an advance of 2s. per week in the wages of twiner-piecers. In the latter case the Conciliation Committee were asked to decide, in the form of recommendation, whether twiner-piecers were entitled to benefit by the agreement made in May 1933 between the Operative Spinners' Amalgamation and the Federation of Master Cotton Spinners' Associations which resulted in an advance of 2s. per week being granted to big piecers and 1s. per week to each joiner-spinner. After consultation with the independent members (Sir F. J. C. Pole and Mr. Arthur Pugh) Mr. Charles Doughty recommended that twiner-piecers were not entitled to benefit under this agreement. In making this recommendation, however, he pointed out that the Spinners' Amalgamation was still at liberty to renew its claim under Clause 4 of the Midland Agreement, which provided for later consideration of claims in the case of exceptional wage rates. The Spinners' Amalgamation acted upon this suggestion, but the claim was again rejected by the employers and referred to the Conciliation Committee. No agreement was reached, and the Chairman, after consultation with the independent members, recommended that sufficient cause had not been shown for granting of the application for a general increase of wages, but that the cases of those twiner-piecers whose wages were substantially below the average should be dealt with by the usual procedure of joint meetings of the representatives of employers and operatives. In view of the previous refusal of the employers it is improbable that the Spinners' Amalgamation will act upon the second recommendation.

The dispute at the Wren Nest Mills of Francis Sumner & Co., arose out of the company installing new methods by which the ring spinner is enabled, without extra work, to mind more than double the number of spindles usually minded, while another operative attends to creeling and cleaning duties. The Chairman's recommendation was that the ring spinner should be paid the same wage as before the change, while the cleaner-creeler's wage should be that prescribed for a ring spinner in the universal list.

It is too early to judge yet whether the Conciliation Committee will be as great a success as it was hoped at the time of its establishment, but obviously the setting up of this machinery represents a great step forward in the industrial relations of the industry. In the past many major disputes have grown out of small disputes at individual mills, and it is possible that, if the spirit of the agreement is maintained both by employers and operatives, the conciliation machinery might be the instrument through which minor disputes would be prevented from developing into those of major importance. Isolated disputes are often the result of different interpretations being put on an agreement, and obviously a satisfactory solution can only be reached if judgment is left to a mind as far as possible unbiassed acting on a factual basis. For example, in the case of the strike at the Hope Mill, Darwen, the employers maintained that they had not broken the "more looms per weaver" agreement, whereas the Union held that a breach had been committed. Moreover, a person acting in the capacity of conciliator can often narrow down the extent of a dispute by finding points of agreement between the two sides.

Violations of the More-Looms Agreement

Unfortunately, a number of isolated firms, and particularly two outlying districts—Harle Syke and Barnoldswick—have introduced practices contrary to the terms of the general agreement. Certain manufacturers have adopted the practice of paying wages on the six-loom scale, but giving each weaver only four looms to work, though there is little attempt to depart from the agreement in the case of other classes of operatives. The result is, of course, that individual weavers have their wages drastically reduced. They suffer a cut of something like 25 per cent, earning 30s. a week or less for a full week's work instead of 38s. to 40s. on the uniform list for four looms. This is the system now generally in force in Harle Syke, where there are about 8,000 looms working, and in Barnoldswick, where it affects some 9,000 looms. In neither case are the employers members of the county

manufacturers' association—their local associations being non-federated—but in both places it has long been customary to adhere to the county agreements. In both places the operatives' unions are inside the Weavers' Amalgamation, and therefore they are breaking an agreement to which they are parties in working on these terms. It has been further alleged that cloths outside the scope of the agreement were being produced at the more-loom rates.

There is little doubt that it is the fear of displacement which has induced the operatives to break the agreement. The six-loom system means that one-third of the weavers lose their jobs unless the volume of trade handled can be increased. Since in Barnoldswick there is already a large surplus of labour and no alternative employment, it is not surprising that the operatives should prefer less pay and the chance of work than the certainty of greater unemployment. The weavers also feared that the operatives who would have been displaced under the more-loom system would have been for the most part women, who, as they would probably have been unable to prove that there was any reasonable likelihood of their returning to their work, would have therefore been disqualified under the Anomalies Act. In Harle Syke it was feared that the operatives who would have been displaced would be men, because women have better hands for weaving than men.

The inducement to the employer to break the agreement arises from the fact that if he adheres, to it he would be involved in expenditure which he maintains cannot be met out of present prices while in some cases employers have actually been asked by their operatives to break the agreement in order to avoid the labour displacement which, as already stated, would otherwise result.

The wages position is rather a complicated one because actually the total amount of wages paid for weaving should be approximately the same for a mill working the full six-loom agreement as a mill working four looms per weaver on the six-loom list. But on the other hand, under the new agreement the weekly production of cloth per loom is less because machinery has to be reduced from $7\frac{1}{2}$ to 10 per cent below the average normal speed for four looms. The output of cloth is not as much as 10 per cent less than on the old system because the slower speed results in fewer breakages. Probably the output averages about 5 per cent less. In addition there is an increased charge for cleaning, for it is estimated that the cost of cleaning a loom on the approved six-loom system is 6d per loom as against 4d when four looms are worked on the six-loom basis. Thus, put approximately, the more-loom system results in a reduction of 10 per cent in weaving wage costs compared with the old four-loom system. If, however, four looms are worked on the six-loom basis, the saving is 15 per cent, and therein lies the temptation to employers. In some cases, where the six-loom system is worked without full payment being made for ancillary activities like cleaning and sweeping, the saving may be as much as 20 per cent.

Some employers are also breaking the agreement by trying to work the new system without adequate preparation in the way of satisfactory yarn, larger cops, and ancillary labour, with the result that operatives cannot make a living wage. Moreover, much discontent has been caused among the operatives by the insistence of some firms that their employees should put back part of their earnings as capital into the firm. At one firm weavers before securing employment had to purchase their own looms.

These breaches of the agreement are causing serious concern in Lancashire, and it is feared that unless some remedy is found the more looms agreement will be scrapped and the industry will revert to its former chaotic labour situation. Moreover, those firms which do not abide by the county agreement are through their price-cutting policy undermining what is left of financial soundness in the industry. It is therefore widely held that, since self-discipline within the industry is no longer possible, order can only be restored with outside help.

Further, under the present system, disputes affecting the whole industry are liable to arise from agreements made by individual firms. Thus in March 1934 the Weavers' Amalgamation came to an agreement with the firm of James Nelson Ltd, which provided for a fixed wage of 50s per week of 48 hours for weavers engaged on artificial silk and cotton mixtures, irrespective of the number of looms run provided it did not exceed six, with a bonus for efficiency to ensure a higher wage than 50s being earned. Many manufacturers claimed that this agreement was an example of bad faith on the part of the Weavers' Amalgamation who had refused to negotiate a county agreement on the more-loom question and had then made such an agreement with a single firm. Moreover, they contended that the agreement was virtually an extension of the six-loom pact of 1931 which gave James Nelson Ltd. an unfair advantage over other firms in the weaving of the finer cloths. Against this the weavers maintained that the new arrangement was merely a minor modification of a previous agreement. In view of the opposition aroused, however, the new agreement has been temporarily suspended. It is hoped that after the passing of the Government's proposed enabling Bill mentioned below an agreement will

be reached on the extension of the more-looms system, which will apply to the whole of the manufacturing section

Meanwhile, the importance of securing the effective working of the more looms agreement can scarcely be overemphasised, the psychological being quite as important as the technical factors. Thus the long and arduous negotiations which led up to the agreement were inextricably bound up with the wage reduction drives, and it was, in fact, the originally uncompromising attitude of the unions towards the more-looms question which led to the wage reduction drive, and finally to the weavers' strike of August 1938 referred to above. The Midland Hotel negotiations represented a first and long overdue attempt to tackle the problems on a factual basis, and every effort is needed to preserve and encourage this method of approach rather than to sabotage the results of it in the early stages

Ministry of Labour Investigation

These breaches of the agreement resulted in the Ministry of Labour making a detailed examination of weavers' earnings, particularly under the more-looms system, and the variations adopted in some parts of the weaving districts. The investigation covered 12,416 workpeople at 48 mills in the Burnley, Nelson, Barnoldswick, Preston, Blackburn and Darwen areas, while further enquiries were also made at 24 firms at Barnoldswick, Earby, Kirkham and other places. On the evidence collected, the firms which had adopted the new piece-work rates of payment embodied in the more looms agreement were classed in three divisions

(1) Firms which were complying with the agreement in such a way as to ensure satisfactory working conditions. The conditions generally were such as to enable weavers to earn more than the 41s per week specified in the agreement

(2) Firms which were complying with some of the clauses of the agreement but not with others, so that the earnings of workers at some mills were less than 41s per week. In most cases ancillary labour was provided, or a special weekly payment made to the weaver

(3) Firms which had adopted the more-looms rate of pay but had made little or no attempt to comply with the other terms of the agreement. Few of the weavers were running six looms, the loom speeds had not been reduced, the weft cops were generally below the sizes specified in the agreement, and the average earnings of weavers running four looms were rarely as much as 88s per week, inclusive of the allowance for loom sweeping

Most of the firms in the third class are in the plain cloth weaving districts, and although the report devoted particular attention to the conditions in Harle Syke and Barnoldswick, non-compliance with some of the principal provisions of the agreement had been found in varying degrees at individual mills in other districts. In Harle Syke it was found at the mills visited that the earnings of weavers attending six looms and paid in accordance with the agreement ranged between 44s and 50s per week. The earnings of weavers attending four looms but paid on the six-looms basis were about 80s to 84s per week, inclusive of the allowance of 4d per loom per week for cleaning. At Barnoldswick, the weekly earnings of six-loom weavers paid on the six-loom basis, were between 40s and 45s per week, but those of the much larger number working four looms but paid on the six-loom basis ranged from 28s. or 29s to 82s or 88s. per week inclusive

Effect of the Violations on Loyal Manufacturers

The most serious effect of these breaches of agreements is that they have encouraged manufacturers, after the unions had naturally refused to sanction an extension of the more-looms system to a wider range of cloth, at any rate until the more-looms agreement had been properly worked, to agitate for a further reduction in wages. For example, in recent months the Blackburn manufacturers, who on the whole have remained loyal to the more-looms agreement, and have not paid their four-loom weavers on the six-loom basis, have found that they have been losing orders to those firms which have broken away from the recognised agreement as well as to those which are working the more-looms-per-weaver system. They therefore claim that they can only be saved from immediate bankruptcy by a reduction in wages, other than those affected by the more-looms agreement. While there is every reason for making the more-looms agreement effective and stopping the disastrous results arising from its terms being so widely disregarded, there cannot be said to be any real justification for a further reduction in wages, and the operatives' contention that the effects of such reduction are dissipated unless accompanied by the necessary reorganisation in structure cannot be disregarded.

The Uniform List and the Pick Basis of Payment

The Blackburn agitation referred to above resulted in the Wages Sub-Committee of the Cotton Spinners' and Manufacturers' Association preparing a new wages list, intended to supersede the old Uniform List. The proposal provides for the payment of 17.5d per 100,000 picks, as in the case of the

more-loom system, but with a percentage addition. There is a divergence of opinion as to whether the percentage addition should be 10 per cent or 15 per cent, but there is said to be at any rate the usual agreement among the manufacturers on the question of a wages reduction. If the addition is 15 per cent, the reduction in wages would be equal to a cut of 8 per cent in actual earnings, or between 1s 5d and 1s 7d in the pound.

In the past wages have been paid on the basis of the Uniform List, which was first adopted in June 1892, and with the introduction of every new kind of cloth a new rate of pay had to be worked out by the trade union secretaries and the officials of the employers' associations. The Uniform List has been supplemented by the Colne and District List of Prices for weaving coloured goods. It should be noted, however, that as the result of an award made by the Industrial Court in 1920, it has been the general practice in Barnoldswick to pay wages nearly 3 per cent lower than those fixed under the County Uniform List. In addition also to county agreements which are applicable to districts covered by affiliated associations, there are district agreements made by local unaffiliated employers' associations and the trade unions. For example, the Oldham Price List for Weaving Cotton Velvets, agreed to by the Oldham Master Manufacturers' Association (which is not affiliated to the Cotton Spinners' and Manufacturers' Association) is not applicable to velvet-weaving establishments in other parts of Lancashire. Since there has been no change in the basic principle of the payment of wages, the Uniform List has become too cumbersome, and the present position is one of extraordinary complexity.

Moreover, under the old system of determining wages, any additions or reductions in the basic rates apply to all the separate items. This has meant that during the war and post-war boom period of rising wages not only was the list increased by the various percentages (see p. 80), but that the extras also received a similar addition. For example, the payment under the allowance of 10 per cent for making a broken end in the weft good would vary according to the wage agreements made from time to time. Such anomalies as this have influenced the employers to demand reform in the basic method of wage payments, and there is undoubtedly a strong case for such reform, provided it is kept as a quite separate technical question and not used as a weapon for effecting a general wage reduction.

Another trouble has been that when a new type of cloth was introduced, as stated above, a new rate of pay was agreed to, but later on, when the new cloth had to meet competition from cheap imitations, it became necessary for some alteration to be made in the rates of wages which were fixed when the cloth had an exclusive market. Such changes in wages have often resulted in many minor disputes. A further result of paying wages on the Uniform List system is that it has resulted in wide variations in earnings per loom which have not corresponded to the exertion required of the worker, but varied according to the kind of cloth which the worker happened to be engaged on. This has prevented to some extent a shift from unprofitable lines to lines for which there was a better demand, and has contributed to the divorce between manufacturer and consumer.

It is argued that the introduction of a pick basis of payment, coupled with a more equitable system of paying for finer reeds, width of cloths, and grades of yarn, would certainly eliminate many of the causes of local disputes, and would even out weavers' earnings. The greatest advantage of the pick system, however, as far as industrial relations are concerned, is that it would prevent shady methods of calculating wages, and any unscrupulous manufacturer who attempted to underpay would have to face the risk of a strike at his mill. Further, it would facilitate statutory control of wages since, as already pointed out, the present system can scarcely be understood by the non-technical outsider.

It is therefore very unfortunate that the present attempt at reorganisation in the method of wage payment should be coupled with a demand for a reduction in wages.

Methods of Securing Uniform Labour Conditions

A number of suggestions have been made for securing uniform labour conditions throughout the industry. All of them have one common feature, namely, the enforcement at law of agreements made by representatives of employers and employed. It is important to note that collective bargaining, supported by well-designed conciliation machinery in the event of actual disputes, must remain the basis for reaching agreements. After an almost complete breakdown of collective bargaining, events of the last year or so have seen a move towards its re-establishment, but there is grave danger of the benefits of this uphill work being lost owing to the inability of the industry as a whole to implement agreements once they have been reached. Agreements honoured by the breach are worse than no agreements at all in Lancashire, because they confirm the historical attitude of the industry towards unity of action.

The three main suggestions for enforcing agreements are.

- (i) By Legislation
- (ii) By a Trade Board.
- (iii) By a Cotton Control Board.

(i) Under the first suggestion a Bill would be passed giving the Ministry of Labour power to make an order giving legal force to wage agreements drawn up by a joint employer/employed wages committee. The initial difficulty which this proposal encounters is that it raises a general matter of principle affecting all industries, and it has been felt in some quarters that Parliament might be reluctant to take action. In this connection it should be pointed out that the new Enabling Bill, the terms of which are discussed on p. 93, is regarded as experimental. The main difficulty of such a Bill, however, is that it would raise serious legal questions.

The trade union view has hitherto been that if the proposal were adopted, labour agreements would take the form of a contract between the employers' associations on the one hand and the trade unions on the other. If any member of either side broke the agreement, the organisation of which the offender was a member would be liable for damages, and thus a complete change in the status of both the trade unions and the employers' associations would be brought about. At the present time the local trade union officials are endowed with responsible powers to settle day-to-day matters which cannot possibly be put into the terms of an agreement, and any action, whether in good faith or not, contrary to the agreement might place the funds of the whole union in jeopardy. Further, while there is in some respects a case for increased authority of the central unions, this would undoubtedly lead to over-centralisation of their activities. It has been held, moreover, that the legalisation of agreements would introduce another element of unfairness in industrial relations, for while it would legally deprive the workers at an individual mill of the right to strike, it would not prevent an employer from "locking out." For example, an individual employer could argue, after having had labour difficulties, that he was closing his mill either because he was retiring from business or because the state of trade necessitated the cessation of production. On the other hand, however, it is admitted that no government could impose penalties which would prevent any large body of workers from striking.

One argument of the employers against legislation has been that, owing to the intricacies of the Uniform List (see p. 90), it would be extremely difficult for an outside body (e.g. a Court of Law) to interpret correctly any agreement. This argument also applies against a Trade Board, but less so to a Control Board of the type outlined below. It has been used conversely by the employers in urging the necessity for a revision of the List or a complete change to a pick basis.

(ii) A Trade Board can be set up by an administrative order, if the rate of wages prevailing in any branch of the trade is too low, and if there is in an industry no adequate machinery for the effective regulation of wages. A Trade Board is composed of representatives of employers and operatives and of appointed members. Appointment both of independent members and of the industry representatives is in the hands of the Ministry of Labour, though in the case of the latter members, employers' and operatives' organisations are consulted before the appointment is made. The independent members are generally University teachers, social workers, and sometimes lawyers, and in most cases they have had long experience of Trade Board work. The fixing of the rates is vested in the Board, while their enforcement rests with the Ministry of Labour.

Wage rates are arrived at by a process similar to bargaining, assisted by the independent members acting in the capacity of conciliators. The independent members, however, have the power to vote just as the other members of the Board, but in practice their vote is seldom cast unless agreement between the employers' and operatives' representatives after negotiation becomes impossible, and then it is only done with reluctance. When it comes to bargaining, the operatives' representatives generally press the argument of the living wage as a basis for negotiation, and employers the argument of what the industry will bear. The result is almost invariably a compromise.

On the whole, it appears that the Trade Board system has worked remarkably well. It has given the two negotiating sides the advantage of having the presence, from the beginning, of conciliators, and thus often agreements have been reached which would have been impossible had the two sides been left to negotiate in the ordinary way. Moreover, since the decisions of a Trade Board, after approval by the Ministry of Labour, are legally enforceable, one of the greatest advantages of the system has been that it has enabled a uniform minimum rate to be established throughout an industry, and has thus prevented disputes caused by firms attempting to depart from the agreed scale. At the same time, the Trade Board system has protected operatives in unorganised industries from unreasonable cuts.

The main defect of the system is that in trades in which organisation is good, Trade Boards are unsuitable in that they become practically a form of compulsory arbitration, and their decisions might easily be resisted by strong organisations

(iii) The third suggestion owes its name to a wartime experiment, but there is not very much in common between this and the scheme recently put up by the Trade Union Congress for the United Textile Factory Workers' Association. The wartime Control Board was composed of representatives of the various sections of the industry, and its object was to ration production and employment. The primary object of the new Control Board would be to enforce the agreements between employers and operatives. For this purpose the manufacture of cotton yarn and cloth would have to be made illegal without a licence, and the Board would have power to withdraw licences from those firms which broke any agreement. It is suggested by the T U C that the Board should be nominated by the Ministry of Labour, who would take into account the interests of the various sections, in order to prevent any scramble for representation if members were elected by the different sections, and in order to avoid the difficulties of choosing a basis for voting power and of evaluating the relative voting rights of different sections of the industry. The members of the Board, with the possible exception of the chairman, would be drawn from the industry, and if necessary, they would relinquish their interests in the industry before undertaking their duties. Under this system, wage agreements would therefore be arrived at by collective bargaining, as in the case of the Trade Boards, but their enforcement would be in the hands of men drawn from the industry.

One difference between the Control Board system and the Trade Board system is that in the latter case the independent members, in the event of deadlock, have power to give a decision, whereas the members of the Control Board would not participate in the actual making of the agreement. In spite of this fundamental difference, there is one main point of similarity between the two systems, namely, the imposition of penalty for any breach of an agreement. There is, however, a difference in degree even in this respect, since the penalty for breach of an agreement under the Control Board system—namely, the compulsory cessation of production—is an extremely serious one, and should any large number of employers break an agreement, or any large number of workers support an employer who is breaking an agreement, the enforcement of the penalty would be difficult and perhaps impossible. The substitution of a very heavy fine for the more serious penalty of compulsory cessation would make the scheme more workable, but the T U C scheme suggests that a penalty of withdrawal of licence should not be imposed for the first offence, if the offender promises not to break an agreement again.

A further difficulty is encountered when the position of manufacturers outside the employers' federations and of manufacturers of mixed fabrics are considered. Is an agreement, to which they have not been a party, to be enforced on them? This question will have to be answered before a Control Board could be put into operation, and in fact, compulsory membership of the employers' or operatives' organisation would probably be necessary. This difficulty would, of course, not arise in the case of legalisation.

A further difficult point which would have to be faced is the constitutional position of the Control Board. Is it to have autocratic power, or is it to be responsible to a Minister who in his turn is responsible to Parliament? This raises a grave constitutional question which up to the present has received little or no consideration. If the Control Board is not responsible to a Minister, then there is no protection against abuse, if it is, then its power and prestige would be less. If the Control Board is to have complete control, is there to be right of appeal, if so, to whom?

Another approach to the question which deserves some consideration is whether the Control Board should act in the capacity of an advisory committee, making confidential recommendations for the withdrawal of licenses upon which the Minister responsible to Parliament could decide whether or not to act. Of course, under this suggestion the Minister would not have power to withdraw a licence without a recommendation to this effect by the Control Board. If this proposal were adopted it would solve the constitutional difficulty mentioned above, though the great disadvantage which it has is that it might introduce labour questions into politics.

The Government Enabling Bill

In March 1984, however, as a result of a joint request from the Cotton Spinners' and Manufacturers' Association and the Weavers' Amalgamation, the Minister of Labour announced that the Government were willing to introduce an enabling Bill with a view to legalising wage agreements. The objects of the Bill were proposed as follows.

(1) To support voluntary collective bargaining, which, as has been shown, is in danger of collapse in the manufacturing section of the cotton industry

(2) To provide a basis on which further co-operation and reorganisation can proceed

(8) To give an experimental basis for ensuring the maintenance of voluntary agreements at the joint request of both sides.

At a joint meeting held early in April, the proposed Bill was approved by representatives of the employers and operatives, and in May, the Bill was introduced into Parliament under the name of the Cotton Manufacturing Industry (Temporary Provisions) Bill. It is to remain in force until December 31st, 1937, but any order enforcing the terms of an agreement which may then be in operation will remain in force until separately revoked. Under the terms of the Bill, on a joint representation by employers and operatives the Minister of Labour will appoint a Board to consider the application and report to him. The Board will consist of a Chairman and two other persons, none of whom may be connected with the industry, and each organisation which is a party to the application will be entitled to appoint six assessors. Recommendations by the Board must be unanimous and the Minister will then make an order setting out the provisions of the agreement. Any employer paying a lower rate of wages will be liable to a fine of £10. Any order may be revoked if a majority of employers or operatives demand it, and the Minister of Labour himself may after twelve months appoint a Board to consider the expediency of revoking an order.

As a solution of the problem, however, the Bill can only be regarded as an experiment and it should be noted that it will not fix statutory wage rates nor impose compulsory arbitration. The initiative will remain with the employers' and operatives' organisations, since, under the provisions of the Bill, the agreed terms will only become binding on a joint request from both sides. If full use is made of the Bill, however, it should do much to prevent individual mills from breaking agreements and so pave the way for a more lasting solution of wage difficulties. An important result of the Bill is that it will deal with non-associated firms, which have recently been growing in number and have escaped their obligations as to conditions of labour without actual breaches of faith, since they were not members of the Manufacturers' Association. Under the provisions of the Bill, wage agreements will apply to all firms, whether associated or not, in a given area.

Whatever method of implementing agreements is adopted, a fundamental change in the psychology both of employers and operatives is badly needed. The traditional attitude of both sides is "to do the other down," and the first step is to secure the abandonment of this by means of emphasis on the factual method of approach, and greater confidence in and assured use of the conciliation machinery. The establishment of uniform labour conditions throughout the country is a vital aim, but this is almost impossible until a careful factual survey of the present position is available. Preliminary steps in this direction have been taken by the Ministry of Labour, but no great progress can be made until individuals within the industry are willing to pool the information which they possess. Many of the labour difficulties which do arise would be reduced in importance if the arguments of both sides were based more on fact and less on conjectures. A step in this direction was taken when the Conciliation Committee was established, and given the spirit in which the agreement was made, it might prove to be the instrument which will give Lancashire a breathing space from its labour problems, thereby enabling its whole attention to be devoted to that vital reorganisation of structure necessary for effective competition in world markets.

(10) PLANT AND EQUIPMENT

Summary

(1) There is little information available about the efficiency of the equipment in Lancashire, except that a substantial proportion of it is obsolete.

(2) Mule spindles have predominated in Lancashire although rings constitute usually over three-quarters of the capacity in other countries. In the past ring spindles have only been suitable for the coarser yarns, though they are now being used to an increasing extent for the finer counts. The costs of production on rings are less than on mules.

(3) High draft spinning has been adopted by very few mills in this country, whereas in other countries it has been adopted on a large scale. The chief reason for Lancashire not adopting it is that the system is more suitable for ring spinning.

(4) The automatic loom has never been popular in Lancashire, largely because of the specialisation of weaving and diversification of cloths, the difficulties in working

double or treble shifts, and the high capital cost of installation. Automatic looms could be introduced with advantage for certain types of cloth.

(5) The introduction of modern winding and beaming plant has been adopted on a large scale in other countries, and Lancashire would probably obtain appreciable economies if, for instance, the High Speed Cone or the Barber-Colman Systems were introduced

(6) Lancashire's future depends on the efficiency of its plant. Close co-operation is necessary between the cotton industry and the textile machine makers. This has been almost completely lacking in the past, but should be easier in the future owing to recent amalgamations in the textile machine industry

(7) In recent years the textile machine industry has been very depressed, and the export trade now accounts for nearly 70 per cent of the production. India is by far the largest market, taking over half the total exports.

Need for Accurate Information

Little information exists about the efficiency of plant in the Lancashire cotton industry beyond the general fact that a substantial proportion of it is out of date. Apart from the survey made by Mr John Ryan (see pp 54 and 61) no work at all has been done in this field, and it is of the utmost importance that the industry should be fully informed about the efficiency of its equipment. One of the chief functions of the statistical bureau in the field of technical economics should be to ascertain by careful survey the age of all plant utilised and its state of efficiency. This information would enormously facilitate the working-out of any redundancy scheme, and would provide a foundation, at present conspicuously absent, for amalgamation in the industry

Repairs and Re-equipment Neglected

It is admitted in reliable quarters that in the majority of cases existing machinery is suffering from lack of overhauling and resetting. This is particularly true of steam power-plants and carding engines. In the latter case there has been no steady renewal of wire, with the result that the quality of work has suffered. In the opinion of card wire makers the neglect in this respect has been serious.

The omission of repairs and overhauls has been caused partly by lack of capital and partly by the desire to reduce working expenses to a minimum in order to produce as favourable trading returns as possible. As the slump has clearly shown, any industry can reduce its costs in this way when hard pressed, but the reduction is temporary and not permanent, and may even lead to heavier capital expenditure in the end than would have been the case if the work had been done regularly. The majority of firms in the cotton industry have been trying this form of economy for too long, and have now reached such a position. Obviously, when an attempt is made to remedy the defect, as it must be as soon as possible, the industry will have to expend a considerable amount of new capital. New capital will not be attracted to the industry until the latter is placed on a profitable basis, and it cannot be placed on a profitable basis in the absence of efficient plant and machinery. A special technique to bridge this gap is therefore necessary.

Recent Technical Advances

In recent years certain improvements in cotton plant have been made, and although they cannot be described in detail, some mention may be made of their outstanding characteristics. The chief improvements have been in ring spinning, high drafting, high-speed winding and warping, and automatic looms, and some of these have been discussed in relation to technological unemployment on pp 81-88

Ring Spinning

(1) In the past Lancashire has spun its yarn almost entirely on mule spindles, whereas in other countries (as shown on p 53) ring spindles have predominated. The chief objection to ring spinning in the past has been that it was only suitable for the coarser counts of yarn. In recent years, however, technical research has developed a ring frame capable of producing yarns very similar to mule spun yarns, and in November 1932, Platt Brothers, of Oldham, announced a new type of ring frame, which is claimed to produce a more regular yarn than that obtained by use of the ordinary ring frame. It has been stated that counts up to 120's are being spun in the U.S.A. on rings and it is also probable that very much finer counts are being spun in England than is generally admitted.

Rings can be worked at a lower cost than mule spindles, for the ring frame can be operated entirely by female labour. Moreover, the ring frame occupies a much smaller floor space, requires

less motive power, and produces one-third more yarn than a similar number of mule spindles. Obviously, if, as is probable, Lancashire in the future has to concentrate increasingly on the production of high-grade yarn, the further adoption of ring spinning must be dependent on the production of rings which can spin satisfactorily the finer counts of yarn. In the spinning of fine yarns on the ordinary type of ring frame, the main difficulty encountered is that of breakages, which tend to become excessive when winding on near the top of the bobbin. The reduction in the length of yarn between the thread guide and the traveller alters considerably the balance of forces on the traveller and causes greater friction between the traveller and the ring which results in increased tension and the possibility of breakage.

Recently, moving lappets have been applied to the ring frame with the object of reducing the diminution in the length of the yarn at the top of the bobbin, and therefore of avoiding the extra tension at this point. In addition moving lappets tend to reduce the length of yarn at the bottom of the bobbin and consequently to increase the tension when it is at a minimum. The result is therefore to reduce the maximum tension on the yarn and the variation of tension so that the risk of breakage is very much reduced. The introduction of moving lappets should therefore enable ring spindles to spin successfully the finer types of yarn and thus be an important factor in extending their use in Lancashire.

A factor which may operate against the introduction of rings on a large scale is that the change over from mule spinning to ring spinning necessitates considerable changes in the distribution of the intermediate processes between spinning and weaving—winding, warping, and beaming. At present these processes appear to be carried on equally by spinning and weaving firms, but if warp yarn produced on rings were commonly used, it would become essential to carry out winding and beaming at the spinning mill in order to reduce transport charges.

In view of the urgent necessity for reduction in costs in the American spinning section, the provision of finance for gradual change over to ring spinning on a scale carefully related to the future of the market for the types of yarn produced and to the rate of amortisation of the plant, must be considered.

High Draft Spinning

(2) The second technical improvement of importance is that of high-draft spinning. In this country, the number of mills which have adopted this system is negligible, while in other countries it has been adopted on a large scale. Low drafting—the system almost universally used in this country—is more costly, for it involves the triplicating of charges in the card room. Moreover, the charges for depreciation, interest and floor space are considerably higher than under the high-drafting system.

The chief reason for Lancashire not adopting high drafting is that it is more suited to ring spinning than to mule spinning, and this factor will probably make the introduction of this system dependent on the wider use of ring frames. Nevertheless a mill with mule spindles may adopt high drafting, even with its original mules, though not as satisfactorily as a mill with ring spindles. The possibility of adopting high drafting to some of the original mules might be investigated further by the industry.

Automatic Looms

(8) The automatic loom has never been popular in Lancashire. For this several reasons may be advanced: the specialisation of weaving and spinning, the difficulties in working double or treble shifts, and the high capital cost of installation. On the other hand, in Japan and the U.S. the automatic loom is widely used, and its adoption has been facilitated by the mass production methods employed and by the prevailing factory legislation.

In experiments conducted by the Lancashire Cotton Corporation in 1931-32, the ordinary loom certainly showed remarkable efficiency. The experiment embraced three types of automatic looms—the Northrop (Bobbin changer), the Toyoda (Shuttle changer), the Vickers-Stafford (Shuttle changer), the Whittaker attachment (bobbin-changing attachment), and the plain Lancashire loom. Forty looms of each type were engaged. Only one type of cloth was woven throughout the test on all the looms. The cloth was one with 64 reed, 66 pick, and 24 counts in the warp and weft. The speed chosen was the most suitable for each particular type of loom. The Northrop ran at 174 picks per minute and attained an efficiency of 92.835 per cent; the Toyoda at 187 picks and 84.595 per cent efficiency, the Vickers-Stafford at 164 picks and 92.263 per cent efficiency, the Whittaker at 178 picks and 84.9 per cent efficiency; and the plain loom at 208 picks and 85.849 per cent efficiency. The pieces per loom per week woven were 1,626 for the Northrop, 1,609 for the Toyoda, 1,520 for the Vickers-Stafford, 1,494 for the Whittaker, and 1,776 for the plain loom.

The following table shows the weaving production costs of the various types of looms used.

L C C EXPERIMENT WEAVING PRODUCTION COSTS, 1981-82

	Plain Loom	Northrop	Toyoda	Vickers-Stafford	Whittaker
Wages	82 99	66 86	74 12	71 09	79 69
Expenses	30 70	67 24	71 88	63 42	56 02
Total	113 69	134 10	146 00	134 51	135 71

As a result of the experience it gained in the test, the Lancashire Cotton Corporation made certain suggestions for the staffing of a complete shed of automatic looms. In the case of the Northrop loom, the tackler would have an 88 loom set, which should be easily workable. The weavers could average just under forty looms each, one girl as spare hand for every 78 looms, a sweeper to 88 looms, and two oilers to two sets or one to each block of 132 looms, one battery filler to 38 looms based on the use of 24's weft. Two weft carriers and two cut carriers could manage a shed of 582 looms. In the case of the Vickers-Stafford loom, the wage costs would be identical with the Northrop loom except that additional battery fillers would be required. One girl to 29 looms was considered not unreasonable. A set of 60 Toyoda looms would keep a tackler employed, and the suggested number per weaver was 30. One spare hand was allowed for each 60 looms, sweeper, oiler and shed labourers, 24 looms to each operative. A tackler's set of Whittaker attachments should not exceed 60 looms, and a weaver would not be overworked on 20 looms with spare hands to 70 looms each.

A special costing showed the probable saving obtainable by double shift working in automatic weaving. This costing was based on an 87½ hour week, composed of two 8-hour shifts each and a 7½ hour shift on Saturdays, half-an-hour being allowed on that day for sand-papering shuttles, extra sweeping and oiling, and other work to keep the looms fit. A comparison of costs between a double shift and a 52½ hour week is given in the following table.

AUTOMATIC LOOMS COSTS OF PRODUCTION UNDER DOUBLE AND SINGLE SHIFTS
(d. per piece)

	Double Shift	52½ hour week
Wages	50 12	44 74
Expenses	84 25	87 46
Interest and depreciation	17 86	21 19
Other interest and depreciation	1 01	1 01
	103 24	104 40
Cropping, overhead and running	8 39	8 39
Cropping, interest and depreciation	1 18	1 18
	107 81	108 97

Although as stated the plain loom showed remarkable efficiency in the experiment described above, for fine cloths and any which attract large "extras" on the weavers' price rates automatic looms are definitely an advantage, and their introduction for these types of cloth would enable a reduction in costs to be made. It should be observed that although for their satisfactory working automatic looms do not need a more expensive or better yarn, they do require a greater uniformity in yarn than is the case with the ordinary loom, and more scientifically controlled conditions throughout the weaving shed. This would entail more supervision than there is at present. Automatic looms could not, however, be introduced in many existing sheds owing to the roof pillars being too close together.

Early in 1984 a new automatic loom was evolved at the works of Messrs W. B. White & Sons, of Colne, which, it is claimed, will weave anything from coarse calico to rayon and fine silk. One

weaver will be able to look after twenty looms when working on fine cloth and up to forty on calico. It is stated that the capital cost will be below that of automatic looms now available, which is a step towards the removal of one of the obstacles to the extension of the use of the automatic loom

It is clear however that the economics regarding the extension of the use of automatic looms are largely bound up with the present method of payment for labour and the possibility of changing them. Given the co-operation of the Unions the installation of automatic looms could probably be made much more economic than appears from the above figures and following the implementation of the "more-loom" agreement and its extension to a wider range of cloths (which has been held up owing to the very unsatisfactory position created through breaches of the agreement), joint discussions of a similar nature to those undertaken in the case of the more-loom question should be opened with a view to promoting the use of automatic looms

Winding and Beaming

In the past winding and beaming were regarded as two relatively unimportant processes, but in recent years the installation of improved plant has been found to be necessary. Modern technical research has shown that the older methods have had detrimental effects upon the quality of the yarn, principally causing a loss of elasticity and, as a result, defects in the sizing and winding processes. As shown on p 81 the improvements take three main forms, and these different forms have been adopted on a large scale in other countries, particularly in the U S. One of the main obstacles to their introduction in this country has been that they only operate to the greatest advantage under a mass production system. As Lancashire has worked continual short time since 1921, there has been no incentive to install these new methods, but with increased concentration of production they will have to be introduced. The economies however which will be achieved as a result of the introduction of improved winding and beaming plant, particularly if the High Speed Cone and the Barber-Colman systems are installed, will be mainly through a reduction in the labour required.

Redundant Plant

It has been shown that both in the spinning and weaving sections there is a considerable redundancy of plant and that much of the plant is definitely out of date. Actual figures of the total amount of machinery scrapped are difficult to obtain, but it is estimated that since 1928 approximately 9,000,000 spindles and 150,000 looms have been destroyed. This scrapping has, however, taken place in a completely haphazard manner and has contributed little towards the improvement in the organisation of the industry. It is a vital necessity that there should be some organised plan for dealing with redundant and obsolete plant, but experience has shown that such a plan cannot be developed voluntarily while the industry is split up into a large number of small units.

The Joint Committee Scheme

Redundancy can either be dealt with by a special scheme such as that evolved by the Joint Committee of Cotton Trade Organisations in April 1982, or through amalgamation. The Joint Committee scheme provided for the appointment of Commissioners by the Board of Trade with powers to impose levies. The figures proposed for the latter were 8d per mule spindle and 4½d per ring spindle per year. Mills remaining entirely closed throughout any quarter were to be exempted from payment. On the security of the levies the Commissioners were to be empowered to borrow up to £2,000,000 and they were to invite offers for the sale of plant at a valuation. Further provisions related to powers for obtaining information, etc.

The scheme was voted on by the spinning section and failed to secure the necessary majority. In the first ballot the L C C voted in favour of the scheme, but in the second ballot abstained. Rejection of the scheme was attributed to the fact that the charge on mills remaining in operation (say £1,250 per year for a mill of 100,000 mules) would have been greater than most of them could have borne, and to the fact that many spinners thought that the L C C would be obtaining undeserved assistance from the rest of the industry. The actual voting figures were as follows

	First Ballot % of Total Spindles	Second Ballot % of Total Spindles	Second Ballot Total No of Spindles
For	46.97	17.70	10,646,239
Against	28.69	56.53	33,997,865
Abstentions	24.34	25.77	27,779,564
	100.00	100.00	72,423,668

Elimination of Redundancy through Amalgamation

When once a scheme has been turned down in Lancashire it is difficult to revive it. While it is possible that opinion has changed since 1932 and that a similar scheme put forward now might command the necessary measure of support, failing this, redundancy can only be tackled by amalgamation. This is usually a roundabout way because it involves watering of capital and subsequent writing-off, but it is possible that with the help of the banks a scheme which involved giving paper in exchange for certain classes of assets could be put across in practice.

An example of the more roundabout method is afforded in the scrapping of redundant mills by the Lancashire Cotton Corporation. Out of 139 units acquired, the Corporation has scrapped 49, involving some 2,250,000 spindles at a cost of £3,000,000.

New Joint Committee Enquiry

The Joint Committee of Cotton Trade Organisations is, however, now conducting an enquiry into the amount of redundant plant in the industry. Spinners and manufacturers are being asked to supply particulars of production and capacity of mills and details of plant which has been wholly stopped since December 1932.

Owing to the cost of scrapping redundant or obsolete plant, many companies have preferred to sell it to foreign textile firms, which has enabled the latter to equip their mills at a low capital cost and so give them some advantage. A recent example is afforded by the purchase of three Lancashire mills by the Misr Company of Alexandria. The three mills comprise 193,000 mule spindles, 50,000 ring spindles and 35,000 doubling spindles, the majority of which are to be transported to Egypt for the erection of a single large mill. The advantage varies considerably, however, with the age and efficiency of the plant sold, and it is doubtful if Lancashire has really suffered as much in this way as is sometimes supposed. It would have suffered still less, however, if mills selling old plant in this way had been able to secure the finance necessary for its replacement by modern plant.

Methods which have been advocated to deal with the question are an export tax on all second-hand textile machinery and the imposition of a levy for the purpose of buying and scrapping redundant plant. The question of the latter has already been dealt with, and as regards the former, it should be noted that it makes no provision for dealing with redundancy. It would be better to let old plant go to anyone who wants it and concentrate on the constructive side of installing new plant.

The Textile Machine Industry

Lancashire's future depends largely on the efficiency of her plant and equipment, and the maintenance of plant at the maximum of efficiency will require close co-operation between the cotton industry, the textile machine makers and finance. In the past the relations between the first two have been rather on an haphazard basis, with the result that Lancashire's overseas rivals have often been the first to benefit from any technical improvements at the expense of the domestic industry, while no effort has been made to reconcile the obviously divergent interests of the machine makers—largely dependent on their export trade—and the spinners and manufacturers—desirous to prevent further expansion in world capacity. This has been the fault of the cotton industry rather than of the textile machine makers, but now that concentration has been secured in the textile machine industry, both structural co-ordination and co-operative research with the cotton industry should be more easily secured.

With the object of effecting amalgamations in the textile machine industry, Textile Machinery Makers Ltd was formed in 1930. The following firms are now in the combine: Platt Brothers & Co., Asa Lees & Co., Dobson & Barlow, John Hetherington & Sons, Howard & Bullough, Brooks & Doxey, and Tweedales & Smalley. The last named firm was the last to enter the combine, and it was only after the latter had secured control by the purchase of sufficient shares in the open market that Tweedales & Smalley joined the merger. Opposition to this merger was led by several members of the board, one reason given for their action being the fear that the works would be eventually closed down.

In recent years the textile machine industry has been depressed, due to the general depression in the cotton industry. The value of the output of makers of textile machinery totalled £11,088,000 in 1930 as against £16,758,000 in 1924—a decline of approximately 33 per cent. The decline in production has however been more severe in certain classes of textile machinery than in others. For example, the output by textile machine makers of complete machines for spinning and twisting (excluding replacement parts) in 1930 was £2,558,000, as against £5,695,000 in 1924. The output of complete machines for weaving and processes preparatory to weaving but subsequent to spinning

(also excluding replacement parts) declined from £1,234,000 in 1924 to £650,000 in 1930. On the other hand, the production of complete bleaching, dyeing, printing, and finishing machines (excluding replacements) by textile machine firms only declined from £384,000 in 1924 to £420,000 in 1930, (though the decline in their production by all firms in the mechanical engineering trades was considerably larger, from £823,000 to £559,000). The latter fact rather indicates that the specialist textile machine firms have fared better than the non-specialist firms. It is interesting, however, to note that a number of firms which formerly concentrated on textile machinery have tended to develop other products in order to protect themselves from the results of the depression in the cotton industry, and in some cases these other products have become more important than textile machines—e.g. Mather & Platt, who are now largely canning machinery specialists.

The following table, based on the Census of Production, shows the production of Textile Machinery in 1924 and 1930

U.K. PRODUCTION OF TEXTILE MACHINERY

	1924				1930			
	Production of firms mainly makers of Textile Machinery		Production of all firms in mechanical engineering trade		Production of firms mainly makers of Textile Machinery		Production of all firms in mechanical engineering trades	
	Quantity (Tons)	Value (£'000)	Quantity (Tons)	Value (£'000)	Quantity (Tons)	Value (£'000)	Quantity (Tons)	Value (£'000)
Spinning and twisting spindles, including all preparatory processes (including replacement parts)	91,810	8,198	92,896	8,896	42,760	5,262	42,810	5,802
Weaving and processes preparatory to weaving but subsequent to spinning and twisting (including replacement parts)	24,050	1,922	24,170	2,175	11,860	1,188	12,830	1,289
Bleaching, dyeing, printing and finishing (including replacement parts)	6,020	882	10,180	1,253	5,080	668	7,220	858
Hosiery, knitting and other textile machinery	—	1,863	—	2,032	—	988	—	1,094
Textile machinery accessories sold separately	—	8,918	—	8,920	—	2,982	—	8,005
Total	—	16,758	—	17,776	—	11,088	—	11,498

The export market in 1930 took about 67 per cent of the production, while the corresponding figure in 1924 was 56 per cent. Though the falling-off in the export trade was important, the chief factor in the decline in production has been the diminished home demand. The decline in the export trade is largely attributable to Japanese competition. In 1932 new looms made in Japan were being shipped to India at £11-£12 per loom c i f Bombay—about half the price of English looms. Moreover Japan has captured the Indian market for weaving machinery accessories and is supplying these goods at less than half the prices English firms can quote. Trade figures, as in the case of the production figures given above, are only available for the whole group of textile machines—cotton, wool, jute, etc.—together. The largest individual market in 1930 was British India, which took £2,513,439 worth of textile machines. The second largest market was France, which took £885,657, while Russia came third with £761,909. Purchases by Russia have declined in recent years.

The following table shows exports of textile machinery from the United Kingdom for the years 1929 to 1932

U K EXPORTS OF TEXTILE MACHINERY

		1929	1930	1931	1932
Total	Tons	99,150	72,545	89,547	42,623
	£000	8,969	6,626	8,827	3,770
Russia	Tons	7,084	8,239	1,892	859
	£000	699	762	157	82
France	Tons	7,518	8,026	8,954	1,353
	£000	809	830	441	182
China	Tons	10,744	10,511	5,906	7,530
	£000	736	707	407	502
Japan	Tons	14,408	5,357	2,907	3,394
	£000	1,041	435	263	337
British India	Tons	38,211	30,593	21,929	27,538
	£000	3,019	2,513	1,749	1,935

During the depression, the industry, owing to lack of capital, has reduced its repairs to a minimum, and has not been able to replace its obsolete machinery. To achieve maximum technical efficiency, which is essential if the industry is to be able to compete in the world markets, new capital is needed, and with the industry in its present condition it cannot be expected that this will come from private investors.

(11) RESEARCH: ECONOMIC AND TECHNICAL

Summary

(1) Research in the cotton industry has been hampered by lack of funds, though the Shirley Institute, in spite of this, has done very valuable work. Very little research is done by individual companies, Tootal, Broadhurst, Lee & Co. and the Dunlop-Revere Co. being outstanding exceptions. It is believed that overseas competitors get more benefit from research done in this country than Lancashire does, because with a few exceptions the technique of utilising research is not well developed in the British cotton industry.

(2) To prevent further displacements by competitive fabrics, cotton must be adapted to modern requirements, and progress in this direction can only be made if more attention is paid to research, and particularly research from the consumers' angle.

(3) Insufficient attention has been devoted to the question of economic research, and the collection of statistical data. The present activities of the Economic Department of the Joint Committee should be extended, and the closest contact should be maintained between economic and technical research. Every endeavour should be made to develop and bring into universal use an accurate costing system throughout the industry.

The scientific and technical research institute for the cotton industry is the British Cotton Industry Research Association (Shirley Institute). The Association costs about £70,000 per annum to run, and this is contributed approximately as follows—Two-fifths by the individual firms (about 80 per cent of the total engaged in production), two-fifths by the Cotton Trade War Memorial Fund, and one-fifth by the Government. In July 1938 the basis of membership was extended, and merchants were given the right of joining.

It has frequently been stated that the Association has been hampered through lack of funds, but nevertheless the work done there compares very favourably with any other textile research institute in the world, although it has sometimes been complained that other countries make better use of its work than Lancashire. In 1930 the contribution from the industry towards research (excluding the small amount carried on by a few individual firms) amounted to about 0.16d per £ net value of output. The smallness of this contribution is realised when it is compared with contributions of other industries. The non-ferrous metal industry, which is far from being a model in this respect, contributes about 0.82d per £ net value of output—or twice as much as the cotton industry, while the chemical industry undoubtedly contributes far more, but the figures are more difficult to obtain owing to the large number of research institutions. In addition, individual companies in both these industries often maintain research departments besides contributing to central research organisations, whereas in the cotton industry very few individual firms do any research.

The programme of the research work at the Shirley Institute has been drawn up in consultation with sub-committees of technical men from the different branches of the industry. It covers the investigation of the raw material through all the manufacturing processes to the finished product in the form of yarn or cloth. A thorough investigation has been made of the various types of opening machines, with a view to determining the relative efficiencies of the different types of beaters. A study of the mechanism of carding has shown that it is possible to carry out modifications of the standard types of cards in directions which make for greater stability, easier setting, and some economy of machine cost and floor space. In spinning, extensive comparisons of the different systems and the influence of varied distribution of drafts, roller settings and weightings, twists and speeds, have provided definite information enabling spinners to choose conditions that are most suitable to their individual requirements. In addition to work of direct application of this kind, a good deal of very valuable basic research is being done. Publications are issued from time to time in the form of either memoranda or pamphlets which deal in every case with a fairly complete investigation, and give all the necessary data and conditions under which the research has been conducted. In addition the "Shirley Institute Bulletin" is circulated to members, giving information on the progress of the research work.

An investigation is needed to determine (a) how far the results of work of direct application done by the Institute are in a form which enables them to be quickly absorbed in works practice, (b) how far such results are actually utilised by members of the Institute, (c) what advances have been made in this way with particular reference to costs, quality and novelties, (d) what provision is made for maintaining adequate contact between the pure and applied fields.

Uncreasable Fabrics

A recent and important result of research in the cotton industry was the discovery by Tootal, Broadhurst, Lee & Co. of a process for impregnating cotton or rayon fabrics with a synthetic resin solution resulting in an uncreasable product. This process adds weight to the material, and it is claimed that it increases the dry strength by 30-50 per cent and the wet strength by as much as 100 per cent. It is stated that it reduces the tendency to slip, and also the laundry shrinkage of the fabrics. The process is claimed to be relatively inexpensive, the cost for some cloths working out at about 2½d. per yard. While the main field will probably be for women's dress goods and fashion materials, the process may assist exports, for instance, to China, where long poplin gowns are worn which crease, and which are substituted by silk whenever the wearer can afford to do so. Other recent inventions of importance are the production of a cotton velvet as light in weight and as soft as chiffon velvet, and the production of "Rayallen"—a silk-like fabric.

Another important development is the introduction of "Lastex" yarn, a strong elastic yarn, made by the Dunlop Revere Thread Company, a subsidiary of the Dunlop Rubber Company. Licenses for the production of Lastex are being issued to a number of textile firms, and the material has attracted a great deal of attention both in England and on the Continent, particularly in connection with the production of dress material. It is to the development of such new materials that Lancashire must look to compensate for the loss of bulk lines.

Competition of Rayon

The demand for cotton fabrics in recent years has been adversely affected by the introduction of new textile materials, and the great change which has taken place in fashions since the war. Rayon has been substituted for it in many uses, and to prevent any further displacement, cotton fabrics must be adapted to modern requirements. Progress in this direction can only be made by increased research, which is in turn dependent on increased contributions from the industry and wider realisation in the industry of the vital necessity for developing new types of cotton fabrics. In the past the majority of firms have been inclined to undervalue the importance of research work, and consequently their contributions have been small. This attitude is typical of the older established industries. In the reorganised cotton industry, research—which would be one of the main instruments used for the recovery of trade and the opening up of new sales—would have to occupy a different position. If the work of the central research association continued to be hampered by inadequacy of funds, steps might have to be taken by the Industry Council outlined on page 114 to levy a uniform contribution from producers in all sections of the industry. This might be assessed on turnover, unit expenditure on wages, or other agreed basis. It is, however, probable that a carefully conducted campaign drawing attention to the practical advantages involved, and emphasising the necessity for universal participation would make statutory action unnecessary, and although experience in other industries shows that a minority of producers always refuse to co-operate, these could to a large extent be deprived of the benefits available to contributing members.

Economic and Statistical Research

In the past very few industries have paid sufficient attention to economic research and the collection of statistical data. Although the Cotton Trade Statistical Bureau, formed in 1927 and merged with the Joint Committee of Cotton Trade Organisations in 1932, has functioned as well as possible under prevailing conditions, and has, particularly through its recent production "Cotton Trade Statistics", placed the cotton industry on a higher level in this respect than many others, still more accurate and quantitative information about the industry is necessary in order to promote productive efficiency and to enable a proper check to be kept on loss and waste. It is therefore suggested that the activities of the Statistical Bureau should be extended, and that, for instance, it should collect as much labour information as possible since wage agreements in the future will have to be reached on a more factual basis than in the past. Moreover, the Bureau should be in a position to obtain from all producers and merchants monthly returns showing the consumption of raw cotton, the output of yarn and cloth, sales, orders on hand, stocks, prices obtained, and any other information of use to the industry. The Bureau would keep in close touch with the Marketing Corporations, and would advise the latter of any economic developments likely to affect marketing conditions, while market research would probably be done through the Marketing Corporations. It would also act as a link with the Government in dealing with international tariff and trade negotiations—an endless activity which for many months has been sapping the energies of leaders of the industry who would otherwise be devoting closer attention to their own mills, and which have been greatly hampered by lack of relevant information readily available.

A thorough overhauling of the basis and methods of collection of economic and statistical information would be necessary. Thus the value of figures for consumption or deliveries of raw cotton when expressed, as is usually done in this country, in bales, is largely lost owing to variations in the weight of bales of different types of cotton—and even variations in that of the same type from year to year. In the same way, figures for production and export of cloth given in linear yards are of greatly reduced value owing to variation in width. A much greater concentration on the use rather than only the preparation of statistical matter is also essential.

Co-ordination between Economic and Technical Research

Where there have been developments in the direction of economic research, generally not enough contact has been maintained with the technical branch. The result of this has been that several reports of great academic but of little practical value have been issued. In the reorganised industry adequate co-ordination between economic and technical research would be a vital factor, and one which would undoubtedly facilitate the development of an accurate costing system, which would, among other advantages, facilitate the ranking of plant and machinery according to technical efficiency. Recently the Joint Committee passed a resolution favouring the formation of a costing department of the Statistical Bureau. The central research organisations would, as far as possible, keep in touch with equivalent foreign bodies, though as the International Cotton Statistics Committee (which also examined the League of Nations' Scheme for Uniform Customs Nomenclature) realised in 1929, a change in the outlook of producers would be necessary if co-operation in this direction is to be secured.

They would also report periodically on technical and economic advances in other countries—a matter which has too frequently been neglected in the past, and by grants and in other ways would encourage independent research on the problems of the industry by universities and outside institutions

International Statistics

The importance of collecting international statistics has long been realised, as it is only by watching the progress of industries of other countries that a planned policy can be pursued, while such material is also of vital importance for successful marketing. To facilitate this, a committee of cotton experts met in 1980 under the auspices of the International Chamber of Commerce, and recommended that international cotton statistics should be collected in the following form. Unfortunately, although their recommendations were drawn up with due regard as to what was likely to be practically obtainable in individual countries as well as to the ideal, they have not been implemented except in certain isolated cases, and the arguments for achieving this are as strong now as they were in 1980, while the proposed schedules themselves need very little revision. The United Kingdom is one of the worst countries as far as cotton or any other industrial statistics are concerned, as the Government Census figures come out too seldom and too long after the year to which they refer to have the value which they should, while the industry is not sufficiently advanced in its outlook for a system of returns to a central bureau to be successfully introduced. Nevertheless, the Statistical Bureau has managed to put available data into the best possible form.

PROPOSED MODEL SCHEDULE FOR INTERNATIONAL COTTON STATISTICS

All data to be collected and issued *quarterly*

Spinning

1. Mill Cotton Consumption and stocks, showing consumption and stocks of *each* growth separately. Return to be made in actual *weight* (not bales).
2. Number of spindles—(a) installed
(b) active
(c) idle
showing separately, mule and ring spindles
3. (a) Spindle hours worked
(b) Spindle hours possible
4. Production of yarn, by weight, showing total, and quantity produced in each of the following groups
under 40s., 40s.—80s., and over 80s.
5. Sales—by weight, classified as in (4).
6. Deliveries—by weight, classified as in (4)

Manufacturing

7. Yarn consumption by manufacturers, by weight, classified as in (4).
8. Number of looms—(a) installed
(b) active
(c) idle
showing separately, ordinary and automatic looms, classified as total, less than 46 in. wide; 46 in.—72 in wide, and over 72 in. wide.
9. (a) Loom hours worked.
(b) Loom hours possible.
10. Production of cloth—by square yardage (or by weight where this is the usual basis of measurement)
11. Sales and deliveries.

Finishing

- 12 Weight produced as percentage of normal capacity (a) bleached, (b) dyed, (c) printed.
- 13 Square yardage of cloth processed (or linear yardage, giving average width) (a) bleached; (b) dyed, (c) printed
- 14 Weight of yarn processed (a) bleached; (b) dyed, (c) printed.

Merchants

- 15 Orders placed with manufacturers
- 16 Orders unfilled

General

- 17 Average number employed in each quarter (Male and female separately).
- 18 Total cash wages paid in each quarter. (Male and female separately)

PART III.—REORGANISATION

Summary

(i) Raw Cotton

(1) The reorganisation of the Liverpool Exchange, compared with other problems of the industry, is not an urgent necessity

(2) The amalgamation of firms in the spinning section will probably result automatically in a reduction in the number of brokers, with the consequence that the value of Liverpool as a futures market may be reduced. As the combines would not employ anything like the existing number of merchants, the Liverpool Exchange may tend to become less of a commodity exchange and more of a central purchasing organisation. Central purchase of raw cotton should, however, be regarded as a possible ultimate evolution, and not as a definite objective.

(3) The proposed Lancashire Textile Co-operative Society had as one of its objects the purchase or leasing of ginneries in cotton-growing countries, and the same idea has several times been put forward in other quarters. One disadvantage of such a policy is that it would restrict Lancashire to certain sources of supply, and there is moreover no convincing proof that it would result in any savings taken over, say, a 5 or 10 year period.

(4) To encourage the use of Empire cotton, a levy is imposed on all imports. The Jackson Committee, formed to encourage the use of Indian cotton, recommended that Lancashire could use larger quantities than it does at present, and subsequent reports have indicated ways of achieving this.

(ii) Amalgamation within the Sections

(1) The multiplicity of units and the lack of co-operation between the different sections has made economic production impossible

(2) The early mistakes made by the Lancashire Cotton Corporation have minimised in the eyes of the industry the advantages of amalgamation.

(3) An expansion of vertical amalgamations is neither feasible nor to any substantial extent desirable.

(4) Although the recent price agreements in the spinning section are to be welcomed, a permanent solution of the undercutting problem can only be achieved by amalgamation within the spinning section. For the successful working of price agreements, compulsory control is necessary. The position of the spinning section is critical, and must be tackled immediately.

(5) Under price agreements no attempt must be made to raise the price beyond the point which leaves a very modest return on costs, otherwise the effect will be disastrous.

(6) The firms outside the Lancashire Cotton Corporation should be brought into a limited number of combines—the “Allied Spinners” scheme may be used as an illustration of the line of action required. The combines could probably be built up round existing groups in the industry.

(7) The first aim in the reorganisation of the weaving section should be the concentration of production on long runs of standardised lines, while retaining diversification for specialties. Amalgamation of mills producing bread-and-butter cloths should be carried out, though those firms producing fancy and high-grade cloths would remain more nearly as they are at present.

(8) The re-separation of the weaving section into well-defined areas according to the class of product made is necessary, and is capable of achievement under a

unified industry. At present Lancashire has to a large extent to wait for orders to come to it, as it has no marketing organisation, although the finishing combines and certain large manufacturers are building up marketing organisations of their own and are selling direct to the consumer

(10) For the disposal of yarn in the reorganised industry a Yarn Marketing Corporation should be established, with divisions for the home and export trade

(11) For the sale of piece goods a Marketing Corporation should also be established. A big step would be taken in this direction if some of the 100-150 of the largest merchant firms which do about 70 per cent of the total business could be brought together to co-operate with the sales departments of certain manufacturers and finishers in the formation of such an organisation.

(12) One of the first aims of the Marketing Corporation should be the reduction in the number of types of cloth, and standardisation of the remainder. Stocks would be held in key positions in the different markets, and a close liaison with wholesalers and retailers in foreign markets would be maintained

(13) An attempt should be made, in co-operation with the City and with other countries, to extend the present forward currency market to the currencies of all the principal markets for Lancashire cotton goods.

(iii) Vertical Co-operation and Central Co-ordination

(1) The industry must in the future form a co-ordinated whole if it is to be able to compete in world markets.

(2) The best method of securing this is by the formation of amalgamations in each section of the industry, and organised co-operation between them through an Industry Council built up for the purpose.

(3) Each section would form responsible Producers' Associations based, probably on existing central organisations, and these, with the Marketing Corporations, would jointly form the basis for the Industry Council

(4) The key to the whole reorganisation scheme would be the Marketing Corporation. Organised marketing must in the future set the pace of production in each section of the industry.

(I) RAW COTTON

(a) Reorganisation of Purchasing

As has been shown in Section 4 the great bulk of the cotton imported into this country is bought either through Liverpool or Manchester. The main advantage of buying through Liverpool is that by dealing in futures spinners can partly protect themselves against fluctuations in raw cotton prices. In the post-war years the fluctuations have been wider than those before the war, and they have been responsible for the loss of a considerable amount of working capital. The present working of the futures system has one undesirable aspect, namely, that it allows members of the outside public to speculate in raw cotton, although to what extent they influence prices is unknown

Effects of Amalgamation in the Spinning Section on the Liverpool Exchange

On the whole, Lancashire appears to be satisfied with the service given by the Liverpool Cotton Exchange. Although the changes advocated in the industry are bound to have repercussions on the position of the Exchange, the reorganisation of the latter, compared with other problems of the industry, is not an urgent necessity. The amalgamation of firms in the spinning section will automatically result in the elimination of surplus brokers, a process which has already begun to take place. It should be recognised, however, that with the reduction in the number of brokers the value of the Liverpool Exchange as a futures market may be reduced, and this would place the industry more at the mercy of the New York Exchange. If Liverpool ceases to function as a futures market, the industry will have at its disposal no means of protecting itself from fluctuations due to speculative factors. Even producing units with large capital resources, such as those envisaged in the reorganised industry, cannot afford to meet violent fluctuations in raw cotton prices, particularly when these are partly due to the operation of American speculators. It might therefore ultimately be necessary for the industry to deal in futures in New York, either through a futures office of its own, or preferably through intermediaries,

in order to avoid excessive fluctuations due to anticipation of a large contract, although with the growth in the use of Empire cotton, the importance of New York might fall

As the reorganisation of the industry would have some effect on the operation of the Exchange, the question arises as to the point at which reduction in the number of individual units in the spinning section and increases in the size of their purchases would begin to alter the method of its functioning. It is assumed that the corporations would at first continue to buy their raw cotton from Liverpool merchants in the normal way. But since the corporations while dividing their purchases among several merchants would not employ anything like the existing number, the latter would be considerably reduced, and there would be a tendency for the Liverpool Exchange to become less of a commodity exchange and more of a central purchasing organisation. When this stage is reached the Exchange would probably be brought within the organised structure of the industry.

Central Purchase Only an Ultimate Evolution

Central purchasing has been adopted with great success by the Japanese industry, which is said to be able to buy from 8 to 5 per cent below actual replacement costs in other markets. One of the advantages of central purchasing would be that when combined with a system of reporting orders in hand and estimated future requirements on the part of the Yarn Marketing Corporation the organisation would be able to distribute their purchases in such a way as to reduce or eliminate the danger of their being forestalled by rises in prices—a trouble with which the Lancashire Cotton Corporation, for instance, has been faced.

Moreover, the central organisation would ultimately be responsible for the working of the futures system on behalf of the whole spinning section, and there would be no capital losses through spinners failing to cover themselves.

Advantages of Ownership of Gineries Doubtful

The Lancashire Textile Co-operative Society, the formation of which was proposed in March 1933 (see p. 74), had as one of its objects the purchase or leasing of gineries in cotton-growing countries, and this has also been suggested by various other bodies. It was claimed that the advantages would be the great saving in ginning costs and the prevention of adulteration, especially in Empire cotton. On the other hand, the scheme would restrict Lancashire to certain sources of supply and would hamper it, when occasion really demanded, in changing from one type of cotton to another. Moreover, it is doubtful whether the buying of gineries in the cotton fields, even if at all possible, would result in the maintenance of harmonious relations with the growers. Proposals with regard to the maintenance of experimental gineries in selected cotton-growing areas are made on p. 15.

(b) Use of Empire Cotton

About two-thirds of the raw cotton used in Lancashire is imported from the U.S.A. and to reduce this dependence attempts have been made to develop cotton growing in the Empire. With this object in view the Cotton Industry Act (1923) imposed a levy of 8d per 500 lbs. on imports of raw cotton. After prolongation in 1928, in July 1933 a third Act was passed which substituted a levy of 1d per 500 lbs. for the former contributions, and otherwise prolonged the principal Act for another five years. Although this legislation has resulted in an increase in the output of cotton by the Empire, the great bulk of it has been purchased by our competitors.

Advantages and Disadvantages of Indian Cotton

The largest producer of cotton in the Empire, and the second largest in the world, is India. In 1931/32 India produced 726,000 tons, Uganda 35,000, Anglo-Egyptian Sudan 44,000 tons, as against 8.6 million tons by the U.S.A. Under the agreement concluded between the British and Indian Governments at the Ottawa Conference, the Jackson Committee was formed to encourage the use of Indian cotton in this country. In the past Lancashire spinners have objected to using it on the grounds that it is only suitable for the spinning of very coarse counts, as the average staple ranges from $\frac{3}{8}$ in. to $\frac{7}{8}$ in. as against $1\frac{1}{8}$ in. or more in American cotton; that it is carelessly picked and improperly baled, and that native brokers have a habit of adulterating it with lint and sand. Moreover, it has never been available in any real selection on the "spot" market as merchants have not been inclined to provide a supply all the year round.

The Jackson Committee made its first report in July 1933. It was emphasised that little of the finer quality Indian cotton would be available for export as this is mostly used in India, but that much of the coarser grade could be used in Lancashire. In the past Japan has been in the habit of mixing Indian with other cotton and has been able in this way to produce cheap cloths which have ousted the

dearer English cloths in many markets. The use of Indian cotton was advocated by the Committee on the grounds that it would enable Lancashire to produce cheaper quality cloths more competitive with the Japanese products. If this policy was adopted Lancashire mills would have to install a wider range of opening machinery, and there would have to be an increase in the capacity of cardroom machinery or a reduction in the number of ring or mule spindles operated.

(2) AMALGAMATION WITHIN THE SECTIONS

As has already been shown, there are an excessive number of units in all sections of the industry, a fact which has made co-operative action of any kind very difficult. In the spinning-section the multiplicity of units has led to weak selling, and to the misdirection of financial facilities, for the banks have often tended to give credit to redundant companies who are already in debt to them at the expense of those struggling unsupported on a firmer financial basis.

Standardisation

In the manufacturing section depression has encouraged firms to diversify their production, with the result that costs have tended to increase, while the aggregate volume of trade has decreased. The whole structure of the industry is affected by this loss of volume, and yet individual firms by themselves cannot create those conditions which are necessary for the strengthening of the commercial position of their section. The merchant has specialised on particular markets, or occasionally on particular types of cloth, and in order to impress his individuality on his goods, he has tended to introduce slight variations in the construction or finish of the cloth. This has not only made economic production by concentration on long runs impossible, but has also prevented bulk marketing. Standardisation is one of the first necessities for economic production, but it cannot be achieved without co-operative action or amalgamation.

Although the Cartel system, widely used in a somewhat rigid form in Germany particularly, enables some of the benefits of co-operation to be achieved, the technique of unification of action without amalgamation is in its infancy in this country, and it is unlikely that Lancashire will prove an encouraging nursery. On the other hand, the benefits realisable from amalgamation, though they might have been admitted ten years ago, have been minimised in the eyes of the industry owing to the unfortunate start of the Lancashire Cotton Corporation, which aroused such widespread opposition. Now that the technique of large scale administration is much nearer solution, owing to the realisation that the advantages of centralised control can only be achieved through functional and administrative decentralisation, it cannot be over-emphasised that the industry must face up to the necessity for further amalgamations. The existence of several large groups in all sections of the industry (except marketing) shows how this can be started, while the reception offered to the work being done in recent months by the Bankers' Industrial Development Company shows that the feeling, at any rate in some quarters, is not altogether hostile.

Amalgamation cannot be regarded as a panacea, and a successful combine is one which realises its limitations. For instance, vertically organised concerns embodying spinning, weaving, and finishing have on the whole fared better than those concentrating on one activity, yet an expansion of vertical amalgamation throughout the entire industry would neither be feasible, owing to its historical development and local specialisation, nor desirable, owing to the fact that it would hinder specialisation (because for various reasons one weaving shed must probably always work on several lines of cloth, and it would be undesirable for the same firm to attempt to produce all the yarns required). This does not imply that where suitable opportunity offers, vertical amalgamation should not be carried further, but in the main the immediate aim must be amalgamation within the sections and co-ordination between them.

(1) SPINNING. At present the only combine in the American spinning section is the Lancashire Cotton Corporation, which originally controlled 9.8 million American spindles, out of a total of approximately 84 million, but has since reduced the number to about 6.2 million. In the Egyptian Section the principal combines are the Fine Spinners' and Doublers' Association, Crosses and Winkworth, and the Combined Egyptian Mills.

Many of the firms outside the Lancashire Cotton Corporation—and not long ago the Corporation itself—have been engaged in a price-cutting war which has steadily undermined the financial soundness of the industry. The abolition of this insane policy could be achieved by two methods, either by the establishment of a price-fixing body which, history suggests, would probably require statutory powers, or by amalgamation. The first method, unless backed by statutory powers, is only suitable for an industry in which there is either a relatively small number of firms, or else strong co-operative action

between them. As neither of these conditions apply to the spinning section, some concentration by amalgamation must take place before a permanent solution of the undercutting problem can be achieved.

Price Agreements in the American Section

A marked improvement in the position has, however, been achieved recently both in the Egyptian and American sections, and an attempt has been made to bring the whole of the spinning section into a system of interlocking agreements. In the American section a modest start was made by an agreement in June 1988 between the L C C and the Royton spinners for a common price basis for coarse (16's) yarns, an agreement which was adhered to for nearly a year. Further, in December 1988 a price agreement was concluded between spinners of medium American yarns. Under this scheme it was agreed that at least 1s 6d per actual ring spindle per annum should be added to "bare costs" for all counts of American ring yarns, while as regards mule yarns, 1s per spindle per annum should be added to bare costs of all counts to 64's twist and to 50's twist. Prices are to be costed on 100 per cent running, and bare costs are to include all charges which have to be met to produce the yarn for delivery. The scheme was supported by firms controlling approximately 22.5 million mule equivalent spindles, and the following table shows the number of mule and ring spindles controlled by firms which agreed to support the scheme.

U.K. RING AND MEDIUM AMERICAN MULE YARN PRICE SCHEMES

	Million
Total mule spindles of firms approached	12.96
Total mule spindles of signatories	12.05
Percentage who signed	93.03%
Total ring spindles of firms approached	7.10
Total ring spindles of signatories	6.57
Percentage who signed	92.29%
Total of both approached	20.06
Total of signatories	18.62
Percentage who signed	92.82%

Subsequently other spinners were induced to sign the agreement and the percentage in the case of mule spindles was increased to 93.10 and in the case of ring spindles to 96.14 by January 1984. As in the Egyptian section it was intended to reach about 4s per spindle by graduated stages.

As was to be expected, however, buyers of yarn and cloth strongly resisted the advance in prices, and a sharp decline in business took place, especially in the medium American section. In spite of this the spinners, with some exceptions, observed the agreements with much greater loyalty than has been the case in the past, but the position is critical since the agreements are purely voluntary and there are no adequate safeguards to prevent price-cutting.

In order to meet the decline in demand and to prevent yarn being sold at a loss, the American Cotton Spinners' Committee, which was formed to secure the observance of the price-raising scheme, recommended a week's stoppage of production of all medium American yarn at Christmas which was observed throughout the section, and a further week's stoppage was recommended in March.

In the Egyptian section over 95 per cent of the total spindleage is supporting the Bolton Master Cotton Spinners' Association scheme, which aims at establishing a minimum basis (to be attained in graduated stages) of 4s per spindle per year for combed yarns, and 3s 6d for carded yarns, to be added to costs as a contribution towards overheads, and at maintaining a profit margin of 15s. per spindle per year based on 100 per cent capacity.

It must be recognised, of course, that the same type of agreement cannot be applied to all sections. The coarse counts scheme is simple, but could not be applied to other counts. The Egyptian scheme may be applicable to the fine American yarns, but difficulties may arise with medium American yarns. These, however, are all technical difficulties, which given the right attack, are capable of solution. In December 1988 the number of spindles operating under price-fixing schemes was as follows. Egyptian yarns 16 million, hosiery 10.5 million, fine American 6.25 million, and coarse counts 2.75 million.

In May 1984, however, the coarse counts scheme broke down and as a result the agreements in all sections are in serious danger. The breakdown shows conclusively that little permanent benefit can be expected from such agreements unless they are accompanied by compulsory powers which will force the dissentient minority to observe the terms of the agreement.

Possible Need for Compulsory Control

Perhaps the most significant step was that the same conclusion was reached last August by the State of Trade Committee of the Federation of Master Cotton Spinners. There is a long way between agreement on this and implementation of it, but even the former is a big step forward for Lancashire, and shows in what direction the future course must lie. Meanwhile, there is considerable danger that the remaining agreements will break down.

Since the middle of 1933 the State of Trade Committee of the Master Spinners' Federation has been working on a reorganisation scheme which is understood to embody the principles of a compulsory levy for the purchase of redundant plant, of a pool and quota system to regulate production, and of a central committee to prevent price-cutting. It is also expected that the scheme will establish a uniform system of costing and that it will apply to the Egyptian as well as the American section. In order to be really effective, the scheme would probably require Government support, and it is understood that the Federation has already approached the Government in this connection.

The scheme was drafted early in April 1934 and submitted for consideration to the State of Trade Committee, from whom it will be passed to the General Committee of the Federation. If approved by the two committees, it will be circulated to the members of the industry.

Several lines of attack should be developed simultaneously. In the first place, the existing voluntary price agreements should if possible be continued, and extended as far as possible both in the class of yarns which they cover and in the number of adherents.

There must be one important qualification to this. Once the fruits of price-raising have been tasted in Lancashire it is not inconceivable that the appetite might prove insatiable after the long fast. It is, however, vital that prices should not be raised—that no attempt should be made to raise them—beyond the point which leaves a very modest return on cost. Otherwise the effect on the industry as a whole will be disastrous, while on the other hand, it will be the surest way of bringing about the destruction of the agreements.

In the second place, every effort should be made to bring about amalgamation in the spinning section of firms outside the L C C, probably on the basis of existing groups (see p. 57). Ultimately, and particularly if the improvement at present visible in the position of the L C C should continue and show that the problems of large scale administration in the cotton industry have been solved, the "Allied Spinners" scheme—for the establishment of a second combine embracing a large part of the rest of the American section outside the L C C—might be revived, but for the moment the separate moves must be made more slowly.

Preparatory work is already being done, in conjunction with the Federation of Master Cotton Spinners, by the Bankers' Industrial Development Company, which organisation can play a vital part in the negotiations for amalgamation.

While amalgamation in the American section is an urgent necessity, there is also a case for completing the concentration of the Egyptian section, which has already gone some way.

(2) WEAVING. It has been repeatedly emphasised that the large variety of cloths produced has prevented economic production. Therefore, the first aim in the reorganisation of the weaving section should be the concentration of production on long runs of standardised lines, while retaining diversification for specialities. The problems of the weaving section are different from those of the spinning section, and large-scale amalgamation would not be desirable. As is well known, makers of fancy and high-class cloths are in a far better position than makers of grey cloth, etc., and the former part of the industry will always require initiative and resource, and would probably be maintained in a more dynamic state under the impetus of individual enterprise and private profit rather than through any amalgamation.

On the other hand, amalgamation of mills dealing with bread-and-butter cloths is an urgent necessity. It is only by amalgamation here and in the marketing section that the number of varieties can be reduced and concentration of production achieved. These cheap cloths can be woven in other countries by peasants with very little tuition, and although the mills which make them in Lancashire are not in quite such a moribund condition on the average as those in the spinning section, the position is sufficiently serious to give a big impetus towards individuals leaving the industry, provided they can salvage enough from their business for them to live on. One difficulty in this case, therefore, is to find a satisfactory financial basis for amalgamation, as hitherto the attitude of the banks has been that no money will be provided for taking out of the industry. The solution seems to be that cash should be given for liquid assets and paper for mills and machinery, but it is doubtful whether this could be done without some form of guaranteed issue.

Encroachment

It should be noted that there are no longer well-defined areas for different types of cloth. This levelling-out process has come from both ends—the manufacturer weaving better class cloths is willing to “fill in” on poorer class cloths, and to pay a little more in wages for these than the manufacturer who is solely or mainly engaged on them can afford to do, while the man engaged in weaving poorer-class cloths is continually trying to get into the better class trade, as his overseas business in the former contracts. Moreover, neither properly understand the section of the trade into which circumstances have forced him to enter, and this has been one of the reasons for the confusion which has resulted.

Amalgamation of Looms on Plain Cloth

The re-separation of the section into well-defined areas according to the class of product is not only necessary but capable of achievement under a unified industry. In this connection the scheme worked out by Mr. John Grey should be noted, which aimed at the amalgamation of 100-150,000 looms working on plain type fabrics in a relatively confined geographical area round Accrington and Barnoldswick. The capital required was estimated at £15-£20 per loom, and a lump sum was to be paid for each mill according to valuation. But it was only proposed to give ordinary capital in paper for the sum represented by the value placed on the mill. In cases where the management was efficient this was to be retained, and the individual identity of the concern was to be preserved. The scheme met, however, with the fiercest opposition, and could not be carried through. The experience of the Lancashire Cotton Corporation should also be noted—the mistake of over-centralisation must be avoided at all costs, and local management must be retained, though steps may be necessary to ensure improvement in its efficiency.

The organisation of the weaving section would therefore be as follows: those firms engaged on the production of the lower-quality cloths would be organised into district combines, while the manufacturers of fancy and high-class cloths would remain more nearly as they are at present. All would be members of a Producers' Association for the weaving section.

(8) **MARKETING** It is particularly significant that there is no organisation in Lancashire at the present time which can go out into foreign markets to obtain orders and to an increasing extent the industry has to wait for orders to come to it. The Lancashire Cotton Corporation has made efforts to get over this difficulty and two men, for instance, were recently sent out to Lithuania with a view to exploring the market, but although there appeared to be good prospects of orders it is significant that difficulties were encountered in obtaining the necessary finance on a basis of four months' credit. This clearly illustrates the troubles arising from lack of co-ordination between various sections of the industry and between the industry and the ancillary utilities.

The big finishing combines are attempting to tackle the same problem by building up overseas marketing organisations of their own and selling direct to the consumer, but they are hampered by the suspicion and disapproval with which any moves in this direction are naturally regarded by the merchants on whom they are in the meantime still largely dependent for orders.

Central Marketing of Yarn

Marketing problems, however, do not only arise in the case of piece goods. As has been repeatedly pointed out, the existence of weak sellers in the spinning section of the industry has undermined its commercial position. The amalgamation of spinning firms discussed on pp. 108-110 would be the first step towards eliminating this by means of price agreements, but there would still be needed some organisation for the sale of yarn. The existing yarn agent system widely employed, particularly by the smaller firms, is not a satisfactory one. With the growth of amalgamations in the spinning section, the marketing of yarn at a lower cost than the agents' 1 per cent becomes a less difficult problem, but if the matter is left to take its course it is probable that each combine would quickly develop its own sales department, which has already been done by many of the larger spinners. The sphere of usefulness of the Manchester Yarn Exchange would then tend to diminish. There appears to be a case for forestalling the further growth of spinners' sales departments by establishing a central marketing organisation for yarn which might take over for its nucleus leading firms from the Yarn Exchange whose experience would be very useful, and the sales departments of those spinners which have them and are willing to co-operate. Dealing through the central marketing organisation might be optional to spinners at any rate in the initial stages, but it is anticipated that given efficient operating technique the marketing organisation would not only show lowest selling costs but would also obtain the lion's share of orders. Allocation of orders to spinners would probably have to be on a pre-determined quota basis, leaving provision for concentrating output in a few mills working near capacity in the hands of the individual combines concerned. Export business would be transacted by an export section of the central market-

ing organisation, and it would be in the potentialities of a unified and progressive export policy that one of the chief arguments for forming such an organisation would lie

Another section would deal with the needs of such industries as hosiery outside the cotton industry proper

Marketing Corporation for Piece Goods

The reorganisation of the marketing of piece goods is bound to be a herculean task, but there is no doubt that the evolution of a Marketing Corporation must be the main aim

There are two alternative courses which might be pursued in building up such a Marketing Corporation. Either it could be started as a new organisation having the support of a group of leading manufacturers and finishers, in which case it would probably have to start with a limited range of cloths and concentrate on one market, where it would be competing with existing merchants as well as with foreign goods, or an attempt might be made to bring together some of the best of the chief merchant firms and weld them together into a strong organisation. At present 100-150 of the largest merchant firms do about 70 per cent of the total business, while the remainder is divided between about 1,000 firms, and if the former group could be brought together, a big step would have been taken towards the elimination of redundant merchant firms. Even this step, however, would not lead to success unless some at least, both of the dozen large manufacturers with sales organisations of their own, and of the finishing combines who have been attempting to build up direct sales in overseas markets could be persuaded to support the scheme. Many authorities in the industry do not believe that it would ever be possible to bring in an appreciable number of merchants, and whether this is so or not the main impetus would probably have to come from the finishers and manufacturers with sales organisations.

Although the case for a strong marketing organisation capable of canalising orders, going out into overseas markets and building up chains of agents and representatives, maintaining stocks at key positions, co-operating closely with finance in working the necessary credit system, promoting standardisation and expanding per capita consumption, as well as regaining lost trade, is unanswerable, the difficulties are obvious. It would have to be built up slowly, step by step, probably market by market, and would have to be preceded by a carefully worked-out plan prepared by leading interests in each section of the industry as to the terms on which existing sales organisations and merchants could be brought into the scheme without forcing it to carry redundant personnel or pay out an exorbitant sum to eliminate them.

The way to tackle Japanese competition is not by wage reduction to Japanese standards. It is not by tariff action, though this may play a necessary part. It is by copying, before it is too late, the only thing which Japan can teach Lancashire—how to sell.

Eventually the Marketing Corporation would probably be divided into the following sections:

- (1) Home and Overseas Dominions
- (2) India
- (3) China and the Far East
- (4) Europe
- (5) Africa
- (6) United States
- (7) Central and South America
- (8) Egypt, Greece and the Levant

It would have as one of its first aims reduction in the number of types of cloth, and like the Japanese would standardise fabrics for the different markets. Stocks would be held at the main ports in each country, so that rapid distribution could be facilitated. Up to the present, merchants have been reluctant to hold large stocks owing to the possibility of loss caused by fluctuations in the price of raw cotton, and also because very few have sufficient resources to finance them, even apart from fluctuations in price. This has tended to promote slowness in distribution, and has thereby given competitors with a quicker distributive system the opportunity to gain at the expense of British merchants. Under the proposed scheme, the Marketing Corporation would require sufficient financial resources to withstand the fluctuations in prices, and would try as far as possible to cover itself from fluctuation in the exchange rates by selling exchanges. It has been argued by the opponents of this suggestion that on nearly all occasions when stocks have been held in foreign markets they have ultimately been disposed of at slaughter prices. This has undoubtedly been due to the lack of co-operation between the shippers on the one hand and the local merchants and retailers on the other. The Marketing Corporation by maintaining contact with local dealers would prevent any repetition of this.

Organisation in Overseas Markets

Under the present system there has seldom been any close liaison between shippers of Lancashire goods and wholesalers and retailers in foreign markets. The Marketing Corporation would establish in each main market either an office under the control of a manager with a thorough knowledge of his market, or a reliable agent or agents chosen probably from among those at present representing Lancashire firms. This representative would be responsible for sales, and would periodically make reports on matters affecting or likely to affect manufacturers. Later on each country would be divided into a number of areas under the control of a sales manager responsible for pushing and co-ordinating sales in that area. Within his area he would appoint official merchants in each district for the distribution of goods to the retailers. Merchants would work on commission basis, and would be bound to deal only in goods marketed by the Corporation. They would be required to enter into a fidelity bond which would be forfeited if they sold goods on any other conditions than those stipulated by the Corporation. Prices at which retailers were to sell would be fixed as far as possible, but obviously owing to the varying nature of the markets and the varying intensity of competition, nothing like complete control over prices would be either possible or desirable.

Such an organisation could obviously only be built up slowly—particularly in view of the almost complete lack of anything of the kind at the present time. The question of personnel is obviously one of the most important, but the men are there if the organisation to use them could be evolved. They would have to be trained in Lancashire in the intricacies of the industry, but it is significant that the criticisms of British salesmanship so often heard now apply much more to organisation and structure than to individual capacity and initiative, which is often the subject of admiration by foreign competitors whose volume of sales in the market may be larger. The success in overseas marketing organisation which has attended the efforts of Imperial Chemical Industries in India and China, and the oil, tobacco, electrical and radio companies in the East and elsewhere stand ahead pointing the way.

Trade Marks

With the reduction in the varieties of cloth the number of trade marks would also be reduced and their nomenclature simplified. It is suggested that the marks of the Corporation should be registered in all markets under the existing copyright laws, and that drastic steps should be taken against evasion. At present the resources of individual merchants are too small to deal with this unpleasant way of expanding trade.

Credit and Protection from Currency Fluctuations

It is obviously impossible to lay down universal credit regulations for all markets, owing to variations in prevailing conditions. One of the first duties of the Marketing Corporation, however, should be to approach the Marketing Corporations of other industries with a view to extending the present forward currency market to the currencies of all the principal markets. If this were done and made use of—as it would probably never be by the majority of small merchants—the industry would be protected to a greater extent from losses due to currency fluctuations than at present.

While other urgent troubles may call for immediate action in other sections of the industry, such as amalgamation among spinners, there is no doubt that the evolution of a successful Marketing Corporation is the key to the longer term reorganisation of the industry, and one on which work should be started without delay.

(3) VERTICAL CO-OPERATION AND CENTRAL CO-ORDINATION

The sectional character of the industry has seriously impaired its financial position, and proved an insuperable obstacle to the evolution of a common policy, and if a further contraction of output is to be avoided, co-ordination between the different sections is essential. The industry must in the future form a co-ordinated whole and not, as at present, a number of violently competitive units in disintegrated layers. This linking up would bring the producer into contact with his markets, and would enable production to be concentrated right through the industry, while at the same time it would secure a fairer distribution of profits among the different sections of the industry.

It could be secured in two ways: either by vertical combination along lines which have already been fairly widely followed by leading firms in the industry, or by the formation of amalgamations in each section of the industry and organised co-operation between them through an Industry Council built up for the purpose. The first method has had beneficial results as far as individual firms are concerned, but the difficulty of applying it to the whole industry is the complication involved in combining several distinct processes, each on a large scale, under one management, and the enormous changes

which would be involved owing to the local specialisation of processes which has been one of the characteristics in the historical growth of the industry. Moreover, as pointed out elsewhere, it is rare for a weaver to be able to spin all the yarns he requires, even if his sheds are on fairly specialised lines, because a certain proportion of variety is probably essential, and therefore it would be uneconomic for all vertical combines to be self-contained. If the industry were starting afresh there might be a stronger case for vertical combines, and the movement could probably be economically extended beyond its present bounds, but under existing circumstances it would not provide a solution to the problem of co-ordination in the industry, and if carried too far might lead to serious difficulties. In view of the different characteristics and problems of the various sections, co-ordination could be more easily secured by the second method—the large-scale amalgamation within each section of the industry and organised co-operation between the sections.

Producers' Associations, Marketing Corporations and Industry Council

Vertical co-operation and central co-ordination throughout the industry would be secured by the establishment of an Industry Council. As outlined in dealing with amalgamation, each section engaged in production would form responsible Producers' Associations, developed in many cases out of existing organisations—spinners, weavers and finishers, and these, with the Marketing Corporation, would jointly form the basis for the Council. The latter would be responsible for the elimination of uncontrolled intermediaries between the different sections, for establishing the mechanism for the smooth flow of materials from raw cotton to the consumer of the finished cloth, for the planning of labour and employment policy for the industry as a whole, and for other problems common to the entire industry.

The key to the whole reorganisation scheme would be the Marketing Corporation. Such a Corporation is needed to preserve such connections of merchant firms as are of value, to co-ordinate them with the sales departments of manufacturers and finishers, to secure an increase in orders, and to concentrate them in the most efficient producing units, and in particular to explore new markets and create, where possible, new demands. Organised marketing must set the pace of production right through each section. In the past the absence of co-ordination has tended to encourage merchants to transact business on terms advantageous to themselves, but detrimental to the manufacturing sections of the industry. Consequently, in the reorganised industry, every safeguard must be taken to ensure that the stronger sections do not grind down the weaker ones, and that the Marketing Corporation markets on terms advantageous to the industry as a whole. The functioning of the Industry Council would aim at securing this necessary co-operation. But as it is intended that prices should be determined by negotiation between the various companies and corporations inside the sectional Producers' Associations, without the interference of the central body, the relationship between these corporations would, of course, be closer than that which would be established merely as a result of co-operation on the Industry Council. It is therefore suggested that the corporations in the various sections should where possible so arrange exchange of shares between themselves that each one would consider the interests of the whole industry rather than of one individual section. Thus, under this scheme, a block of shares in one of the Spinning Corporations would be held by one of the Manufacturing Corporations. As the income of each sectional corporation would partly depend upon the prosperity of the other sections, this exchange of shares would encourage each section to develop an industry outlook, and so reduce the tendency of the stronger sections to exploit the weaker ones. By this method also the manufacturing sections would be brought into closer contact with their markets, and the vertical co-operation of the industry as a whole would be promoted.

PART IV.—THE COTTON INDUSTRY IN OTHER COUNTRIES

Summary

(1) The main characteristic of post-war development in the cotton industry abroad has been the rapid rate of progress made by Eastern competitors which were formerly important markets for Lancashire goods

(2) Competition has been most severe in the coarser counts, and the great majority of spindles outside the United Kingdom are ring spindles, although the Japanese and the Ahmedabad mills, for instance, are beginning to spin finer yarns. The Chinese industry has been developed partly by Japanese and partly British capital.

(3) In Japan the Japanese Cotton Spinners' Association exercises a large measure of control over its members, and it is understood that steps are being taken to control exports. In the case of the Indian market this was necessitated by the Indo-Japanese agreement, but the Government are also concerned about the unnecessarily low selling prices ruling in many other export markets, and are favouring control of exports of cotton goods for this reason, in much the same way as in the case of several other commodities.

(4) The equipment in other countries is claimed to be more efficient on the average than that possessed by Lancashire. Apart from the higher proportion of ring spindles, automatic looms are used more widely abroad, but the efficiency of labour is very low compared with this country.

(5) The hours worked in the East are usually longer than those worked in the United Kingdom, and in Japan, for instance, two shifts of 8½ hours each are usually worked.

(6) While the Japanese cotton industry has received no direct subsidy from the Government, it has received an indirect subsidy in the form of shipping rebates granted to raw cotton importers. The total Government shipping subsidies in 1933/34 were Yen 12.3 million. Differential prices also rule for home and export sales and this is facilitated by the structure of the industry.

(7) Japan has received considerable help from her depreciated currency, but the benefit has been less substantial in 1934 than during the previous year. Little use is made of hedging to counteract fluctuations in raw cotton prices, but it is frequently claimed that the Japanese obtain their raw cotton cheaper than Lancashire spinners. Raw cotton imports are mainly in the hands of a few large trading concerns.

(8) The basis of the Japanese success is their marketing methods much more than either their cheaper labour costs or their devaluated currency. There are many points in these methods which could advantageously be copied by Lancashire—particularly the centralisation of marketing, the maintenance of close contacts with consumers in native markets and the intimate co-operation between marketing and production.

(9) The development of the Indian industry has resulted in a large decline in imports which were 92 per cent of the Indian production in 1924 and 29 per cent in 1933.

(10) The majority of the Indian mills are not working on a profitable basis, and the general efficiency is far below that found in Japan. The majority of Indian mills, it is claimed, are capitalised at more than £20 per spindle.

(11) In the United States, there has been a tendency for the South to gain at

the expense of the North. Prosperity has declined during the post-war years in contrast with the general industrial trend. Far more looms are usually devoted to the production of one type of cloth than in this country. Under the Recovery Code a minimum wage has been fixed for cotton operatives, and while this is expected to slow down the progress of the South at the expense of the North, competitive fabrics will probably benefit.

(12) The majority of European countries have increased their spindleage during the post-war years, and the greater proportion are ring spindles as against mules in the United Kingdom.

(13) In most European countries attempts have been made to secure amalgamation or co-operation between producers. Approximately half the spindles in Belgium are controlled by one combine, while in Italy the *Sindacato Italiano dei Filatori* has been formed with the object of promoting co-operation within the industry. In Poland a loose cartel has been formed, and there has also been a movement in this direction in Germany.

(i) JAPAN

The most remarkable characteristic of the Japanese Cotton Industry is its phenomenal rate of progress. Undoubtedly the war gave Japan her opportunity for development, and during the years 1914-18 she was able to entrench herself in those markets which had formerly been supplied by Lancashire. In 1918 Japan possessed approximately 2.4 million spindles, in 1918 3 million and in 1922 4½ million. But it was between 1923 and 1926 that the most remarkable growth took place when the number of spindles increased by 44 per cent to 6.47 million, in spite of the fact that the earthquake in September 1923 caused a loss of at least half a million spindles. From 1926 onwards the number of spindles has increased at about 5 per cent per annum, and in 1933 totalled 8.5 million. It is stated that the more recent increases are mostly due to the installation of high draft frames.

Since the end of 1933, however, the rate of increase in the number of spindles has grown remarkably. Between December 31st, 1933, and March 31st, 1934, the increase was 663,000 or a yearly rate of over 2.5 million spindles, which is very nearly equal to the total increase in the eight years 1926-33.

The Toyo company with 1.4 million spindles is the largest in Japan, and with the exception of this, the Kanegafuchi and the Fuji companies, there are no others with more than half a million spindles. Most of the companies have between 100,000 and 250,000 spindles. The following table shows the number of spindles and looms owned by the principal companies in Japan proper at December 31st, 1933, and the increase between that date and March 31st, 1934.

JAPAN NUMBER OF SPINDLES AND LOOMS BY COMPANIES, DECEMBER 31ST, 1933 AND MARCH 31ST, 1934

	December 31st, 1933		March 31st, 1934 Increase	
	Spindles (1,000)	Looms (100)	Spindles (1,000)	Looms (100)
Kanegafuchi	823	103	160	*
Toyo	1,372	158	55	12
Fuji Gasu	537	85	10	*
Kishiwada	259	22	60	4
Kurashiki	382	18	50	2
Kinkwa	314	15	5	-
Wakayama	126	10	17	*
Izumo	100	14	50	3
Hinode	136	-	62	-
Myosho	122	13	33	3
Omi Hampu	94	8	20	*
Kureha	250	27	24	-
Nagasaki	120	4	13	-
Sagami	69	-	24	-
Asahi	49	8	6	*
Naigaumen	43	8	20	*
Total	4,796	443	663	24

*Unknown

Predominance of Ring Spindles and Growth in Output per Unit of Plant

About 90 per cent of the total number of spindles in Japan are ring spindles. The economic Mission to the East in 1930-31 reported that it found little difference between the practice of ring spinning in Great Britain and that employed in Japan, but it was noticed that a larger range of opening machines were used in Japanese mills. Creighton openers are generally duplicated and it was found in some of the mills visited by the Mission that as many as three Hopper feeders were installed in a single range, followed by intermediate and finisher scrutchers.

The efficiency both of Japanese spinning mills and weaving sheds compares very favourably with that of the best European producers. The following table compares the production per spindle per 48 hours in Japanese and British mills.

U K AND JAPAN* PRODUCTION PER SPINDLE PER 48 HOURS 1932

Counts	Japanese Spindles	English Spindles
100	28 80	—
80	31 68	24 96
60	36 86	30 24
40	42 24	36 10
30	39 1-40 3	37 20
20	49 54	43 48

In recent years there has been an increased output per unit of plant, and the following table compares the production per loom per day by some of the main Japanese companies for the years 1927 and 1932

JAPAN PRODUCTION PER LOOM PER DAY BY 9 MAIN COMPANIES
(yards)

Companies	Jan -June 1927	July-Dec. 1927	Jan -June 1932	July-Dec 1932
Dai Nippon . . .	52 61	55 97	72 18	73 69
Toyo . . .	51 75	52 01	67 58	66 99
Kinkwa . . .	40 68	42 52	54 92	59 49
Kurashiki . . .	91 19	51.20	73 00	69 53
Huttori . . .	91 82	83 37	122 09	116 06
Toyoda . . .	86 43	84 73	84 26	83 40
Kanegafuchi . . .	64 91	64 96	68 67	68 59
Fuji . . .	43 12	39 48	61 25	59 80
Nissin . . .	43 80	43 68	74 97	71 79

As a result of the predominance of ring spindles the number of females employed in spinning is considerably greater than that of males. In 1930 the ratio between females and males employed in the mills of members of the Japanese Cotton Spinners' Association was 4 1. In Lancashire the ratio between females and males engaged in spinning mills is approximately 1 4 1.

Japan has concentrated on the production of coarse counts and her marketing of low quality cloths has been largely responsible for the decline in Lancashire exports to Eastern markets. In recent years, however, Japan has shown a tendency to turn to the production of medium and finer counts, particularly 80's and 40's. This tendency is shown by an increase in the quantity of American and Egyptian cotton consumed by Japanese spinners, and a decrease in the percentage of Indian and Chinese cotton used. In 1933 approximately 59 per cent of the total cotton consumed was American as against 30 per cent in 1918.

The following table shows the percentage of raw cotton imported from various countries for the years 1928-33.

JAPAN IMPORTS OF RAW COTTON BY COUNTRIES, 1928-33
(Quantity—per cent)

	1928	1929	1930	1931	1932	1933
U S A	39.6	41.6	40.5	47.7	71.5	59.11
British India	47.0	47.6	49.4	43.1	21.5	31.8
China	10.7	7.2	7.3	6.4	4.4	4.5
Egypt	1.8	2.2	1.9	2.6	2.6	2.2
Others	0.9	1.4	0.9	0.2	0.0	2.1
	100.0	100.0	100.0	100.0	100.0	100.0

The weaving section of the industry has also expanded. The total number of looms in 1924 and 1929 was 388,000 and 363,000 respectively. Wide power looms, however (on which most of the export fabrics are made) increased from 117,000 in 1924 to 171,000 in 1930, and the decline in the total number of looms is due to the great decrease in the number of narrow power looms and hand looms.

In addition to an increased output there has been a tendency for the number of operatives per unit of plant to decrease. The following table shows the number of working looms per weaver in the case of 9 of the main concerns for the years 1927 and 1932.

JAPAN NUMBER OF WORKING LOOMS PER WEAVER

Companies	Jan -June 1927	July-Dec 1927	Jan -June 1932	July-Dec 1932
Dai Nippon	1.05	1.13	2.09	1.96
Toyo	1.33	1.48	2.57	2.57
Kinkwa	1.21	1.34	2.71	2.31
Kurashiki	1.16	1.23	3.11	2.88
Hutton	1.01	1.14	1.72	1.66
Toyoda	1.40	1.76	2.31	2.36
Kanegafuchi	1.38	1.42	2.29	2.12
Fuji	1.23	1.40	1.94	1.88
Nisshin	1.77	1.79	1.98	1.96

About 50 per cent of the power looms are in the hands of combined spinning and weaving firms, and about 20 per cent of the looms owned by these companies are automatic looms—generally of 42 ins. to 49 ins. in width.

Expansion of Production and Exports

This increase in capacity has resulted in an increase in production, and in the following table the production of yarn and cloth is shown for the years 1924-33.

JAPAN YARN AND CLOTH PRODUCTION

	Yarn (mill lbs)	Cloth (mill yds)	
		15 ins wide or more	Under 15 ins wide
1914	666.5	—	—
1924	829.1	—	—
1925	974.7	—	—
1926	1,043.1	2,616	1,659
1927	1,012.3	2,724	1,752
1928	980.7	3,018	1,625
1929	1,117.0	—	—
1930	1,009.8	2,904	1,396
1931	1,027.2	3,126	1,481
1932	1,124.0	3,408	1,294
1933*	1,240.0	4,200	1,200

* Estimated

Exports of yarn have declined from 34 per cent of the output in 1914 to approximately 2.5 per cent in 1930 and 1.6 per cent in 1933, mainly owing to the expansion of the weaving industry. The value of exports of cloth from Japan increased steadily until the peak was reached in 1926 when exports totalled yen 416.25 million (£40.2 million at the 1926 exchange rate). It fell in 1927 and 1928 but rose again in 1929 to yen 412.7 million (£39.1 million). In 1930, owing to the world depression, there was a considerable drop in exports which amounted to yen 272 million (£27.6 million). There was a further drop to yen 199 million (£21.6 million) in 1931, but since then there has been a considerable recovery to yen 289 million (£23.0 million) in 1932 and yen 395 million (£24.0 million) in 1933. The most important class of exports (other than coloured and printed goods classified as "others") is that of grey shirtings, which in 1929 amounted to yen 98 million, and the next most important that of sateens, which amounted to yen 56 million.

The following table shows the total exports of cotton piece goods from Japan and the quantities exported to her principal markets.

JAPAN EXPORTS OF COTTON PIECE GOODS, 1928-33
(mill square yds)

	1928	1929	1930	1931	1932	1933
Total	1,418.8	1,790.6	1,571.8	1,413.8	2,031.7	2,087.4
China	653.7	671.3	587.8	340.8	321.0	319.7*
British India	357.7	581.1	404.3	404.4	644.7	451.1
Dutch East Indies	172.7	193.4	182.9	212.1	352.2	442.4
Straits Settlements	15.9	29.5	44.6	41.3	82.2	90.4
Egypt	77.6	107.4	109.0	103.8	195.4	210.4
Africa	29.7	55.1	69.9	122.0	164.1	204.8
Australia	12.3	13.8	14.2	20.9	36.0	57.3
Argentina	9.0	17.6	7.3	10.5	22.5	57.3

* Including Dairen and Manchukuo

It will be seen that Japanese exports to all the above mentioned markets, with the exception of China, were greater in 1932 than in any of the previous years, while further increases, with the exception of China and India, took place in 1933. In 1931 British India took 28.6 per cent of the total exports, China 16.9 per cent, and the Dutch East Indies 14.9 per cent. In 1932 the corresponding figures were 31.7 per cent, 15.8 per cent and 17.3 per cent. In 1933, however, exports to India fell to 21.6 per cent of the total, mainly owing to the increase in the import tariff on cotton goods of non-British manufacture.

Hours of Work

The hours of work are governed by Statute, and most mills run two shifts of 8½ working hours each, from 5 a.m. to 2 p.m. and from 2 p.m. to 11 p.m. with an interval in each of 30 minutes' rest. Mills running one shift work 11 hours per day, from 6 a.m. to 5 p.m., with an hour of rest. In 1930-31, when the British Economic Mission to the Far East was in Japan, of the mills which were members of the Japanese Cotton Spinners' Association only 526,712 spindles were working a single shift while 6,508,086 spindles were working two shifts. Operatives working one shift are given two rest days each month, and those working two shifts four rest days per month in addition to the usual religious holidays, numbering about seventeen per year.

Raw Cotton Import and Piece Goods Marketing

As has been pointed out above, the great bulk of the cotton used in Japan was Indian cotton up to 1930, although since then larger quantities of American cotton have been used. The importation of raw cotton is in the hands of three big companies, namely, Toyo Menkwa Kaisha (a subsidiary of Mitsubishi), Nippon Menkwa Kabushiki Kaisha, and the Goshu Kabushiki Kaisha. These firms sell chiefly to the mills which are members of the Japanese Cotton Spinners' Association, and they also buy for export about 40 per cent of the finished cloth. They maintain their own representatives both in India and in the United States, and it is claimed that the Japanese spinners obtain their supplies of raw cotton cheaper than spinners in other countries. The importers are able to offer raw cotton at these lower prices largely because they themselves make large profits from speculation in cotton and on exchange transactions and profits from the sale of yarn and cloth. Spinners generally buy cotton at fixed prices and not "on call," and they do not protect themselves from the fluctuations in raw cotton prices by hedging.

Marketing of Japanese cotton goods is done in a variety of ways. As has already been stated, the three firms of Toyo, Nippon and Goshō do about 40 per cent of the Japanese trade in cotton yarns and cloths, and are chiefly interested in greys and whites. Their chief market is China, but they are also developing their connections with India, Egypt, Turkey and Africa. The rest of the trade is in the hands of smaller firms.

There has hitherto been intense competition between the exporters, and it has been claimed that the smaller men have an advantage in that they buy mostly from the small mills where costs of production are low owing to the low wages paid. The merchants and exporters have specialised on a limited number of lines with the result that production can be concentrated, and those firms dealing in dyed or printed goods are able to obtain favourable terms from the finishers, most of whom work on a commission basis as in this country. Often an exporter will make a little "corner" in a particular brand, and if it happens to be a popular seller he will increase his price, and will thus be able to recoup himself for any losses which he had to make in order to establish market connections. Moreover, Japanese cloth is not subject to the same critical examination by the merchants as in Lancashire. The Government have for some time been considering taking steps to prevent uneconomic competition among exporters, and it is understood that measures for the further centralisation of export sales and possibly fixing of minimum prices may be introduced. It is often held by British observers in different markets that the Japanese sell at much lower prices than they could obtain. Recently as a result of the Indo-Japanese trade agreement, the Japanese have established an "Indian Cotton Export Guild" under the Department of Commerce and Industry in order to control cotton cloth exports in accordance with the terms of the agreement.

Japan is making great efforts to develop new markets, and in 1931 trade delegations visited several European countries, with the object of arranging with agents for the disposal of Japanese goods. It is understood that the leading producers, such as Toyo, Kanegafuchi and Dai Nippon, have agreed to co-operate in forming a selling organisation in Europe, as there is considered to be a good market for Japanese goods, which are expected both in price and quality to be able to compete with British goods. It is proposed to start with one or two simple low-priced lines and then gradually develop a more complex variety. Japan is not only beginning to compete in European markets, but is also seeking new outlets in West Africa, Egypt, the Dutch East Indies and other countries (see Section 8). Particular attention is being paid to the South American market, where the Kanegafuchi Spinning Co. has opened a distributing centre for its products. As the trade balance between Japan and South America has been in the former's favour, Japan intends to take Latin-American raw materials in exchange for manufactured goods. Moreover, in October 1933, after lengthy negotiations, Japan secured a large concession from Abyssinia for cotton growing linked up with provisions for immigration and settlement, and it is hoped that besides making her less dependent on Indian and American cotton this will provide her with a base for expanding her trade with Africa.

Shipping Subsidies

The Japanese shipping companies—and the British also, in order to compete with them—which transport the raw cotton to Japan, grant substantial rebates to the raw cotton importers. These rebates amount to 2s 6d per 400 lbs from Bombay and 4s. 3d from Karachi. The fact that the Japanese shipping lines receive substantial subsidies from the Government facilitates the granting of these several rebates.

The following table shows the subsidies distributed to various routes for the years 1930/31 to 1933/34. It is said that the San Francisco and Seattle services cause the Nippon Yusen Kaisha an annual loss of yen 3 million, while the companies on the China route are at present suffering heavy losses through the Chinese boycott.

JAPAN SHIPPING SUBSIDIES GRANTED BY THE GOVERNMENT
(million yen)

Routes	1930/31	1931/32	1932/33	1933/34
San Francisco .	23	29	29	37
Seattle .	14	17	19	18
South America .	22	22	22	18
South Sea, Africa .	06	06	06	06
China .	14	14	12	18
Near East, Cuba .	02	02	02	—
Other Routes .	21	21	21	26
Total .	102	111	111	123

Differential Yarn Prices for Home and Export

The view is widely held in Lancashire that the Japanese industry is in receipt of a direct Government subsidy, but an extensive study of this subject in June 1932 by Dr. Wisselink of Rotterdam did not confirm this view. Dr. Wisselink stated that though the Japanese Government, which is naturally anxious that cotton exports should be maintained at their present level, might later be prepared to subsidise the industry, it has not done so yet. Mills, however, charge higher prices at home than abroad in order to recoup themselves for any losses incurred in the export trade, but this is, of course, common practice, for instance, in the case of British coal and steel. This price discrimination is facilitated by the fact that the cloth for the home market is woven by small firms, to which members of the Japanese Cotton Spinners' Association sell part of their yarn output at a considerable profit, retaining the surplus for weaving into cloth to be sold abroad at very low prices.

Intensification of Competition and Currency Devaluation

Since 1930 Japanese competition both in the Indian and African markets has tended to become intensified. In the former market it has been met by an increase in import tariffs (see p. 42), though apart from representations made by the British Government after the Ottawa Conference no action has yet been taken to protect such markets as Ceylon. The agitation at present being conducted by the Cotton Trade League and other interests favouring a high tariff policy in the Empire markets has been referred to in Section 8.

Japanese exports have, of course, recently received considerable help from currency devaluation and there has also been widespread piracy of British trade marks and designs. The following table shows the average sterling-yen rate of exchange for the years 1918 and 1920-33. It will be seen that it is only since 1932 that the Japanese have depreciated their currency to any considerable extent.

AVERAGE STERLING-YEN RATE OF EXCHANGE
(Par value 1 yen=24 58d)

Pence per yen		Pence per yen	
1918	24 57	1933 January	14 75
1920	32 78	February	14 56
1921	80 00	March	14 69
1922	25 98	April	14 75
1923	25 76	May	14 68
1924	22 88	June	15 00
1925	20 55	July	14 80
1926	23 17	August	14 85
1927	23 44	September	14 01
1928	22 91	October	14 19
1929	22 75	November	14 15
1930	24 87	December	14 33
1931	26 18		
1932	19 10		
1933	14 51		

In 1932 the Japanese textile companies were able to benefit enormously from the depreciation of the yen, since they had acquired large stocks of raw cotton before the depreciation. When these stocks were exhausted they were compelled to buy raw cotton at a much greater price, the value of imports rising from yen 296 million in 1931 to yen 605 million in 1933. Wages, however, rose only 10 per cent compared with the 60 per cent depreciation in terms of gold, so that advantages of the depreciation are still being felt in reduced labour costs. The price of food, however, is rising slowly, so that this advantage will not continue at its present level much longer. Moreover, budgetary expenditure greatly exceeds income, one reason for this being the increased interest payments on foreign loans due to yen depreciation and another the heavy military expenditure. It is, therefore, believed in some quarters that the Japanese Government now wishes to increase the value of the yen and will shortly take steps in that direction, since the advantages of the depreciation to industry are now virtually over.

Financial Position of the Industry

Although there was a contraction in output during 1932 the Japanese cotton industry had a very successful year. The following table analyses the financial situation of the Japanese cotton industry for the years 1928-32:

JAPAN ANALYSIS OF FINANCIAL SITUATION OF THE COTTON INDUSTRY

Period	Number of companies	Current ratio	Ratio of fixed assets to total assets %	Ratio of profit*	
				To total assets %	To paid-up capital %
1928 1st half	10	3.7	47	8.7	24.8
2nd "	10	3.9	48	9.0	25.3
1929 1st "	10	3.7	46	8.6	25.4
2nd "	10	4.1	48	8.8	24.2
1930 1st "	10	3.7	51	3.9	11.1
2nd "	10	3.9	55	1.4	3.7
1931 1st "	10	4.0	56	6.1	16.6
2nd "	10	4.2	57	6.4	17.8
1932 1st "	10	4.0	56	6.4	17.1
2nd "	10	4.1	56	7.0	19.0

* Per annum

† Ratio of liquid assets to liabilities

During 1933 the Japanese cotton industry continued to work on a profitable basis and the average dividend of ten companies with a paid-up capital of approximately yen 200 million was 12.0 per cent.

Large profits were made from purchases of raw cotton prior to the imposition of the gold export embargo in December 1931. During the first nine months of 1932 restriction of spinning activity amounted to 30.4 per cent of capacity and in the last quarter to 35.7 per cent, while throughout 1933 it has been maintained at 27.6 per cent. The consumption of raw cotton in 1933 is estimated at 1,460 million lbs, as against 1,806 million lbs in 1932, 1,171 million in 1930, 1,814 million in 1929 and 969 million lbs in 1924. This increased production despite curtailment to about two-thirds capacity is explained by the installation of new spindles during 1932. Prices during the year were revised in an upward direction due to increased costs of production probably partly due to the increased organised short time and partly to effects of the yen devaluation.

Marketing Methods

Some interesting facts emerged as a result of a survey of the markets of the Near East and Africa, from Egypt to the Cape, made by Mr W. F. Machin in 1932, with special reference to Japanese sales methods and openings for Lancashire, which may be summarised as follows:

(1) Japanese success is not due to price alone but to a carefully planned sales campaign carried out by the industry as a whole over a period of years. The points to be emphasised are neither cheap labour nor assistance in the form of subsidies, although both may play a part, but planning and unity of action.

(2) Low commodity prices have reduced the purchasing power of the natives and the vast bulk of the demand is for cheap lines (e.g. unbleached sheeting and striped drills) in which Japan has practically a monopoly.

(3) Actual prices at which these cheap lines are sold (often 40 per cent below Lancashire prices, for instance, 1½d. per yard (25 ins wide) c.i.f. Istanbul for striped drill) may, as is often claimed, represent a loss to makers, but even this is doubtful and the indirect advantages are very important.

(4) Such advantages are the enormous turnover resulting from cheapness, since consumption is very sensitive to price, competition by merchants for representation, thus ensuring first-class service; ability to obtain cash against documents from the big importing merchants, leaving the latter to finance the smaller merchants if necessary, with the resultant strong position of not having to compete in giving credits, and ability to take advantage quickly of any recovery in world conditions by having the sales channels carefully organised.

(5) Japanese service is very efficient. Agents are given wide powers and are encouraged to pass back suggestions for variations in design, etc., which are frequently executed and returned to the market in an exceptionally short time, thus ensuring that manufacturers are kept in close touch with demand.

(6) Dumps of the right material are established in the right place to enable bulk shipments to be effected at low cost, and important orders to be rapidly executed.

(ii) CHINA

The Chinese cotton industry, like that of Japan, has grown rapidly. In 1913 China possessed

approximately 964,000 spindles, in 1925 8.4 million, in 1930 4.2 million, and in 1933 4.6 million. The development of the Chinese industry has been facilitated by the investment both of Japanese and British capital, principally the former, and the following tables show the number of spindles and looms in Chinese-owned, British-owned and Japanese-owned mills

CHINA NUMBER OF SPINDLES
(000)

	1913	1918	1925	1927	1929	1930	1933
Total . . .	964	1,249	3,459	3,658	3,879	4,204	4,610
Chinese . . .	598	765	1,882	2,082	2,114	2,896	2,637
Japanese . . .	371	484	1,372	1,421	1,612	1,655	1,790
British . . .			205	205	153	153	188

CHINA NUMBER OF LOOMS

	1913	1925	1927	1929	1930	1933
Total . . .	4,564	25,984	26,078	29,890	29,658	39,564
Chinese . . .	—	16,742	13,459	16,787	15,955	19,081
Japanese . . .	—	6,844	10,268	11,203	11,803*	17,592
British . . .	—	2,848	2,848	1,900	1,900	2,891

* Includes 386 automatic looms

About 60 per cent of the total spindleage and about 90 per cent of the foreign-owned spindleage is concentrated in Shanghai

The chief Japanese companies which have mills in China are the Naigai Wata Kaisha, the Japan and Shanghai Spinning and Weaving Co., the Dai Nippon Spinning Co., and the Toyo Co. Professor Remer estimated that in 1932 the Chinese mills of these companies produced 35 per cent of the Chinese yarn and 55 per cent of the cloth output. The Calico Printers Association has a mill in Shanghai, and it is understood that another one will shortly be erected.

The British Economic Mission to the Far East, which studied the Chinese industry in 1930-31, visited a number of mills, and found that they were less efficient than those visited in Japan. They noted that there was a difference in the size of the three types of mills. The average spindleage of Chinese-owned mills is 80,000, that of Japanese-owned 40,000 and that of British 50,000. From subsequent reports on new constructions it appears that Japanese concerns are tending to build larger mills while Chinese concerns are building smaller ones.

The number of operatives employed in cotton mills in China is estimated at about 250,000, of whom 160,000 are in the Chinese-owned mills. As to the constitution of the labour force little information is available, but in the Greater Shanghai area the proportion of men, women and children is approximately as follows:

	Per cent
Men . . .	81
Women . . .	66
Children . . .	8

It is reported that the number of children employed is tending to decrease, because Chinese mill-owners have found this uneconomic. Moreover, the habit of employing children has tended to retard the progress of mechanisation. Most mills run two shifts of 12 hours from 6 a.m. to 6 p.m. and from 6 p.m. to 6 a.m., but in the majority of mills there is no day shift on Sunday.

The increase in plant referred to above has resulted in an increase in production, as shown in the following table.

CHINA PRODUCTION OF YARN AND CLOTH

	Yarn (mill lbs)	Cloth (mill yds)
1915 . . .	250	45
1925 . . .	719	120
1927 . . .	841	360
1929 . . .	948	590
1932 . . .	960	810

The figures given do not cover the entire production of cotton yarn and cloth in China, since considerable quantities of both are produced by the natives in their own homes, and it is impossible to give statistics for this production. Most of the yarn produced is in the lower counts.

The increased yarn production has resulted in decreased imports. In 1913 China imported approximately 360 million lbs, in 1925 85.7 million lbs, in 1930 21.5 million lbs, in 1932 12.8 million lbs and in 1938 8.8 million lbs. Japan and India have been the principal sufferers in this loss of trade, though the former, by building mills in China, has recovered some of it. In 1929 the total import value of cotton goods amounted to £25.2 million (piece goods £22 million), equivalent to 15 per cent of the total value of all imports. The average value of piece goods imported into China in 1910-18 was £12 million, of which Great Britain supplied 59.5 per cent and Japan 15.0 per cent. Since 1929 there has been a sharp decline in total imports and in 1931 Great Britain's share had fallen to 15 per cent, while Japan's had risen to 72 per cent.

In 1930 China exported 44 million lbs of yarn as against 19.6 million in 1924, and the value of cloth exports for recent years has been estimated at £2 million a year. About one-third of the cloth woven in Chinese mills is exported to foreign countries, particularly to the Middle Eastern countries, and to India, Malaya and the Dutch East Indies. The following table shows imports of yarn and piece goods and exports of yarn. It will be seen that the value of the imports of piece goods between 1924 and 1930 tended to fall, but this fall is due to declining values rather than reduced demand, as shown when imports are revalued at 1924 prices.

CHINA EXPORTS AND IMPORTS OF YARN AND PIECE GOODS

	Exports of yarn (mill lbs)	Imports of yarn (mill lbs)	Imports of piece goods (mill £)	Imports of piece goods (revalued at 1924 prices) %
1924 . . .	19.6	77.5	28.0	100.0
1925 . . .	8.7	85.7	26.4	101.0
1926 . . .	25.6	61.1	26.6	115.4
1927 . . .	45.8	39.8	18.4	90.6
1928 . . .	46.6	37.7	24.1	117.8
1929 . . .	46.0	31.1	22.0	119.9
1930 . . .	44.0	21.5	12.4	86.5
1931 . . .	82.4	6.4	8.8	56.5
1932 . . .	46.2	12.8	7.1	48.5*
1938 . . .	72.2	8.8	3.6	28.6*

* Estimate

In different localities different rates of wages are paid. Generally slightly higher wages are paid in the foreign-owned mills than in the Chinese-owned mills. The following table shows the wages paid in the Shanghai area in 1930.

CHINA DAILY WAGES IN THE SHANGHAI AREA 1930*

	Spinning		Weaving	
	High	Low	High	Low
Men . . .	s d 2 2	s d 6½	s. d. 1 2	s d 7
Women . . .	1 4	5½	1 0	6
Children . . .	6	4½	5	3½

* Converted from \$ at rate of \$1 = 1s 3½d

China is quite an important producer of raw cotton. The estimated cotton crop for 1933/34 is 1,284 million lbs, as against 1,081 million lbs in 1932/33, 858 million in 1931/32 and 1,178 million in 1928/29. In 1930 China imported 464 million lbs of raw cotton, of which 259 million came from British India and 152 million from the U S A. In 1932 imports totalled 496 million lbs (88 per cent of total consumption), of which 414 million lbs came from the U S A and 60 million lbs from British India. The provinces in the Yangtse Valley consume the greater part of the cotton imported into China.

The quality of Chinese cotton is very variable and in order to check deterioration in the standard various regulations and laws have been passed, but largely owing to political disturbances, little progress has been recorded. No export or import of cotton is, however, permitted without examination by the Bureau of Testing and Inspection of Commercial Commodities. Japan and the United States are the only countries to which China exports raw cotton in any quantity. In 1924 Chinese exports were 188 million lbs to Japan and 22 million lbs to the United States, and in 1931 94 million lbs and 14 million lbs respectively.

The Chinese industry, both as regards Chinese-owned and foreign-owned mills, is moving towards amalgamation. The majority of the Japanese mills are controlled by the big combines in Japan, while as much as 25 per cent of the Chinese-owned spindleage is controlled by two companies. In June 1933 the Chinese cotton mill-owners in Shanghai agreed to form a joint organisation for the sale and transportation of their products. It is rumoured that the Japanese intend to increase the capacity of their mills in China by 400,000 or 500,000 spindles, while the Chinese Government is also trying to further the erection of new mills.

In October 1933 the Canton Government Provincial Department of Reconstruction placed an order with Messrs Platt Bros for the plant of two cotton mills and one woollen mill. The order for the first cotton mill included 10,000 ring spindles, 1,200 doubling spindles, and the usual apparatus for opening, cleaning, carding, warping, etc., and it is understood that the mill started operating in March 1934. In view of the even lower labour costs in China it is quite possible that before very long, given stable government, China may begin to follow Japan as a leading world exporter of cheap cotton goods.

(iii) INDIA

The Indian cotton industry has expanded rapidly since 1910 when it possessed 6.2 million spindles and 88,000 looms. Between 1925 and 1933 the number of spindles increased from 8.4 million to 9.5 million, and the number of looms from 151,000 to 182,000. Approximately 8.5 million (90 per cent) of the spindles are rings. The total number of mills in India is about 290, of which 200 are located in the Bombay Presidency and 28 in Madras. In 1929/30 the average daily number of persons employed was 568,137 as against 804,307 in 1920/21.

In 1924 the production of yarn totalled 647 million lbs, in 1928 807 million lbs, in 1932 1,020 million lbs, and is estimated at 960 million lbs in 1933. Indian mills at present spin the coarser counts of yarn, the bulk of production being 11's to 30's. But between 1924 and 1930 the production of 31's to 40's increased by approximately 295 per cent and this trend is still being continued. The finer counts are spun in the Bombay mills.

The bulk of the yarn imports, both pre-war and post-war, have been of the finer counts (31's to 40's). In 1928 approximately 44 per cent of the imports of yarn consisted of 31's to 40's and 23 per cent of 41's and over, in 1933 the corresponding figures were 48 per cent and 17 per cent.

In 1913 India imported 50 million lbs of yarn, of which approximately 80 per cent was obtained from the United Kingdom. In 1931 imports totalled 30.5 million lbs, of which the United Kingdom supplied only 33 per cent. In 1932 imports were 44.2 million lbs, the share of the United Kingdom remaining 33 per cent, but in 1933 the share of the United Kingdom declined to 29 per cent out of a total of 33.7 million lbs. In 1910 India exported 228.5 million lbs. of yarn, 51 per cent of which went to China. But with the growth of the Chinese industry Indian spinners had to look elsewhere for a market, and the new outlet for the increased production was provided by the expansion of weaving. In 1910 the Indian mills consumed 86 per cent of the yarn output, but in 1931 this had risen to approximately 98 per cent of a much larger output.

The production of cloth increased from 1,841 million yards in 1924 to 2,494 million yards in 1930 and to 3,203 million yards in 1932, and is estimated at 3,200 million yards in 1933. Production costs are relatively high, and most of the cloth is consumed in the home market. In 1930 approximately 4 per cent of the total production of cloth was exported, the principal markets being Ceylon, Persia and Iraq. Imports are declining and quite apart from the depression now represent a much smaller

proportion of the total consumption than in 1924-28 Imports of cotton piece goods into India in 1924 totalled 1,704.9 million yards, in 1928 1,880.7 million yards, in 1932 1,155.2 million yards, and in 1933 860 million yards In 1924 the United Kingdom supplied nearly 90 per cent of the total imports of piece goods, in 1929 66 per cent, and in 1932 only 48 per cent In 1933, however, there was a slight recovery to 52 per cent, due to the increased preference Imports from Japan in 1924 were equivalent to approximately 9 per cent of total imports, in 1929 about 28 per cent, in 1932 48 per cent, and in 1933 44 per cent In 1924 total imports were equivalent to 92 per cent of the Indian production, in 1930 to 50 per cent, and in 1932 to 36 per cent The following table shows production, imports and exports of yarn and piece goods It will be noticed that the Indian mills have tended to increase their hold over the domestic market The excess of imports of piece goods over domestic production in 1928 was due to a strike in the Bombay mills

BRITISH INDIA PRODUCTION, IMPORTS AND EXPORTS OF YARN AND PIECE GOODS

	Production of yarn (mill lbs)	Production of piece goods* (mill yds)	Imports of yarn† (mill lbs)	Imports of cotton piece goods‡ (mill yds)	Imports of piece goods as percentage of production (per cent)
1924	647	1,841	54.5	1,704.9	92
1925	682	1,909	49.5	1,640.7	86
1926	739	2,226	51.8	1,784.0	80
1927	824	2,372	56.6	1,965.1	83
1928	627	1,860	38.6	1,880.7	101
1929	807	2,357	46.5	1,910.4	81
1930	861	2,494	32.3	1,253.6	50
1931	932	2,900	30.5	741.3	26
1932	1,020	3,203	44.2	1,155.2	36
1933	960§	3,200§	33.7	860.0	27

	Exports of yarn by sea (mill lbs)	Exports of piece goods by sea (mill yds)	Estimated exports of piece goods‡ by land (mill lbs)
1924	31.8	169.0	—
1925	34.1	165.8	—
1926	40.0	179.3	15.8
1927	27.4	187.1	19.4
1928	21.5	149.0	20.6
1929	23.6	145.9	23.6
1930	23.1	103.4	20.2
1931	22.1	98.9	21.2
1932	16.7	81.7	24.2
1933	17.1	59.1	24.3

* Figures only relate to mill cloth production In addition it is estimated that hand loom production exceeds 1,000 million yards per year

† Includes Burma

‡ Years ending 31st March, and excluding exports via Burma

§ Estimate

To prevent any further increase in imports from Japan and to combat the effect of alleged Japanese dumping on the Indian mills, the Indian Government, in July 1933, increased the import duties on plain grey cotton piece goods of non-British manufacture from 50 per cent to 75 per cent *ad valorem* or 6½ annas per lb (whichever is the higher), and on other cotton piece goods of non-British manufacture from 50 per cent to 75 per cent *ad valorem* In retaliation the Japanese spinners, as mentioned on p 46, decided to boycott Indian raw cotton This alarmed the Indian cotton growers, who had an assured and, as it seemed, a growing market in Japan The Indian mill-owners tried to pacify the growers by arguing that Japan, whatever happened, would be compelled to continue to buy Indian cotton The cotton growers, however, were not impressed by this argument, especially in face of increased Japanese purchases of American cotton and their efforts to make themselves independent by starting Japanese-run cotton growing concessions, for instance in Abyssinia, and estimated that should the boycott be continued in 1934 there would be a surplus of about 1½ million bales.

This increase in duties on piece goods caused a substantial reduction in Japanese imports, and some merchants were even of the opinion that Japan's inability to overcome the new tariffs would enable Lancashire manufacturers to recover some of their lost trade in bulk lines, such as grey shirting

and grey dhooties. On the other hand, however, it was evident that if this should have proved to be the case the Indian mill-owners would not have rested content until they were granted further protection against Lancashire.

In view of the growing tension the British Government proposed, in July 1933, that a tripartite conference should be held in India between representatives of the British, Indian and Japanese textile industries (i.e. cotton, rayon and silk) to discuss the Indian market and the British Colonial markets in which India is interested. It was also suggested that these discussions should be followed by a conference in this country between representatives of the British and Japanese cotton industries to discuss other textile markets. The Anglo-Indian and Indo-Japanese agreements reached as a result of these discussions, and the subsequent reduction of the Indian tariff on Japanese goods against the establishment of quotas on the latter, are described on pp 41-48.

The majority of the Indian mills are not working on a profitable basis, and many of those which are working full time are accumulating stocks. In recent months, moreover, drastic cuts have been made in wages, and in September 1933 the Currumbhoy group of mills was involved in serious financial difficulties which necessitated the closing of the Kasturchand mills by order of the trustees for the debenture holders. In spite of these adverse conditions, however, new mills have recently been planned at Ahmedabad, and some of the contracts for the plant have been placed with English textile machine firms. It has been rumoured that the Japanese, who possess one mill (which has, however, not been successful), intend to extend their manufacturing activities in India, but this rumour has been officially denied.

This unsatisfactory position in which the Indian industry is placed is due largely to three factors:

- (1) Accumulated stock due to overproduction
- (2) Higher costs of production of Bombay mills in comparison with up-country mills and with foreign mills both Japanese and English
- (3) Lack of control against reckless competition between Bombay mills.

The Indian industry is very highly capitalised, partly because the whole of the plant has had to be imported from Europe. It is estimated that the majority of the mills are capitalised at over £20 per spindle as against 19s 4d. per mule equivalent spindle for the Lancashire Cotton Corporation. Moreover there is a big difference in the efficiency of the workpeople. According to one estimate, nineteen hands are required in a Bombay mill for a bale of 20's as against eleven in Japan.

On the finer counts the discrepancy is even greater, and an average Bombay mill employs nearly three times as many operatives per 10,000 spindles as are employed in a Japanese mill. The total wages of spinners attending 1,000 spindles work out, on an average, at £3 12s 6d. per week for Japan as against £3 9s 0d. for British India. Thus labour costs for spinning in India appear to be about 2.3 times as much as those in Japan (see p 80).

There is a similar difference in labour efficiency in the case of weaving. One Japanese weaving-girl can attend eight looms while an Indian male weaver generally handles two looms. The following table compares the number of hands employed per 100 looms in typical Japanese, Shanghai and Indian weaving sheds in 1930-33. The period was one in which there was considerable development of mechanisation.

LABOUR EMPLOYED PER 100 LOOMS

Year	Japanese*		Shanghai mills	Bombay mills
	A mills	B mills		
1930 . . .	26	50	59	94
1931 . . .	22	49	55	89
1932 . . .	20	44	48	88
1933 . . .	18	37	42	61

* The Japanese A mills have now 70 per cent of automatic looms.

Actually experiments are at present being made at the Ambika mill, Ahmedabad, with the object of increasing the number of looms per weaver to four. The wages of the weaver are increased by 50 per cent and the wages bill of the mill decreased by 25 per cent.

At the present time mills are springing up in centres other than Bombay, and in many quarters it is believed that the Bombay industry will decline. There are, for instance, twenty projected mills in

Bengal, which is Bombay's best market. Most competent observers agree that a merger of some thirty of Bombay's eighty-one mills is necessary, although the difficulties of putting this into effect are obvious. Whatever tariff protection it is given the Indian industry can only be put on a sound financial basis if it is prepared to improve its efficiency and control its future expansion.

(iv) THE UNITED STATES

The United States is the largest producer both of raw cotton and cotton piece goods. In 1981/82 the total world production of raw cotton was estimated at 5,492,000 tons, of which the U.S. produced 3,648,000 tons (67 per cent), while in 1982/83 world production was estimated at 4,860,000 tons and that of the U.S. at 2,780,000 tons (57 per cent).

According to the statistics of the International Federation of Master Cotton Spinners, the U.S.A., on 1st January, 1983, had 81.8 million spindles, of which 80.1 million (96 per cent) were estimated to be rings. In 1929 there were 1,281 establishments.

The cotton industry is mainly located in the South and in New England, and in 1982, out of a total of 27.3 million active spindles, 17.6 million were to be found in the South and 8.6 million in New England. In recent years New England has tended to lose ground relatively to the South owing to the discrepancy in wage rates, and the following table shows the number of active spindles in the South and in New England for the years 1920-82.

U.S. NUMBER OF ACTIVE SPINDLES IN THE SOUTH AND NEW ENGLAND
(millions)

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1980	1981	1982
The South	15.2	15.7	15.9	16.8	16.9	17.8	17.6	17.9	18.3	18.5	18.6	18.1	17.6
New England	18.3	18.4	17.9	18.1	17.1	15.9	15.5	15.0	13.8	12.5	11.4	9.7	8.6

From the above table it will be seen that the number of active spindles in the South exceeded the number in New England for the first time in 1925, and since that year the gap between the two has tended to become wider.

About 50 per cent of the mills combine spinning and weaving, 37 per cent spinning only, and the remainder weaving only. Approximately 85 per cent of the mills confined to spinning only are located in the South.

During 1983 86.7 million spindle-hours were worked as against 70.2 million in 1982, 80.8 million in 1924, and 99.8 million in 1929.

Production and Exports

The industry reached its maximum activity in 1927, when 7.2 million bales were consumed. Since then there has been a steady decline in activity. Consumption of raw cotton in 1929 had declined to 7.1 million bales, in 1980 to 6.1 million bales, and in 1982 to 5 million bales, but in 1983 there was a recovery to 6.2 million bales. Production has similarly fallen from 8,624 million square yards in 1929 to 6,882 million square yards in 1981. Since 1928, however, deliveries have kept pace with production. Of the total production of yarn in 1927, 51 per cent consisted of counts up to 20's and 41 per cent of counts between 21's and 40's. The high proportion represented by the lower counts is thus very striking. In 1929 20 per cent of the total production of cloth consisted of sheetings and 20 per cent of print cloth, while the third largest category consisted of drills, which, however, only accounted for 4 per cent. Less than 8 per cent of the total production of cloth is exported, and approximately 60 per cent of total exports consist of printed and dyed piece goods. The principal export markets are the Philippines, Cuba, Canada and Central America, which between them take about 50 per cent of the total U.S. exports of piece goods. The following table shows the consumption of raw cotton and the exports of yarn and cloth for the years 1924-88.

U S CONSUMPTION OF RAW COTTON AND EXPORTS OF YARN AND CLOTH

	Consumption of raw cotton (ooo bales)	Exports of yarn (mill lbs)	Exports of cloth (mill sq yards)
1924	5,681	18 7	477 8
1925	6,198	21 9	548 8
1926	6,456	24 0	518 8
1927	7,190	28 5	565 0
1928	6,884	26 6	546 8
1929	7,091	27 5	564 4
1930	6,106	18 1	416 8
1931	5,263	14 3	367 0
1932	5,010	15 5	375 4
1933	6,216	12 0	302 0

The home market absorbs more than 90 per cent of the total cloth production. In recent years there has been a tendency for the *per capita* consumption of cotton goods to decline, due partly to the popularity of rayon

The *per capita* consumption in 1932 amounted to 48 86 square yards, compared with 54 88 square yards in 1931 and 50 14 square yards in 1930. In 1922 the *per capita* consumption was 71 89 square yards

Profits

As has been shown above the U S industry, during the post-war years, has been compelled to work below full capacity, and this has had serious effects upon profits. The following table shows the average cash dividends for New Bedford and River Fall mills for the years 1920-30

U S AVERAGE CASH DIVIDENDS AND CAPITAL OF NEW BEDFORD AND RIVER FALL MILLS

	New Bedford		River Fall	
	Dividend Per Cent	Capital (mill \$)	Dividend Per Cent	Capital (mill \$)
1920	26 17	50 97	32 77	88 86
1921	9 19	59 27	8 01	88 61
1922	9 72	61 74	9 60	87 21
1923	6 96	72 25	7 81	44 67
1924	5 13	78 25	6 45	43 67
1925	5 30	74 08	5 08	43 59
1926	4 00	72 70	3 48	43 59
1927	3 50	72 46	3 51	41 66
1928	2 08	71 69	2 94	39 84
1929	2 11	50 74	3 83	31 55
1930	1 08	47 51	1 97	22 27

In 1929 there were 424,916 cotton operatives. The average wage per week of spinners in the United States in June 1933 was £3 11s 9d, as against £2 0s 8d in England (see page 80). Wage rates during the post-war years have been considerably above the pre-war level, and the following table shows wage changes in New Bedford up to the end of 1928

U S WAGE CHANGES IN NEW BEDFORD

Period	Per Cent
March 1912 to January 1916	100
December 1919 to June 1920	234
June 1920 to January 1921	269
January 1921 to April 1923	208
April 1923 to June 1925	234
June 1925 to April 1928	211
April 1928 to October 1928	190
October 1928	200

Since the war there has been little change in the structure of the American industry. As has already been pointed out, the majority of mills are combined spinning and weaving mills, while some firms even include finishing and making-up departments. On the whole, however, finishing has been undertaken by separate firms, working on a commission basis as in this country. In recent years both finishers and makers-up have pushed the sale of cotton goods and have engaged in extensive advertising. In 1929 the leading firms engaged in mercerising cotton formed the Durene Association with the object of developing markets for these yarns both at home and abroad. In 1930 the Textile Export Association was formed to develop export markets for piece goods and yarn.

The size of those mills engaged solely in spinning is about the same as in England and Japan. In weaving, as has been pointed out on page 64, some of the mills contain more looms than the English mills, and generally more looms are devoted to the production of one type of cloth in the United States than in Lancashire. At various times since 1929 the question of amalgamating the firms engaged in the spinning of the finer counts has been considered, and in 1931 the General Cotton Corporation was formed, with the object of absorbing 4 million spindles in this section of the industry, which it is estimated has a surplus of about 1 million spindles.

Raw Cotton

During 1933 the U.S. Department of Agriculture evolved plans for the reduction of the cotton acreage in order to prevent over-supply. About 9 to 10 million acres of the 1933 crop have been destroyed, and it was estimated that this would represent 3.5 million bales. The growers will receive 4.2 cents per lb. destroyed or a slightly smaller rate plus the option to buy a limited amount of Government-owned cotton at 6 cents per lb. and make a profit on the resale. It has been stated that expectation by the farmers of some such scheme led to the large increase in the acreage which would have been doubtful if low prices had been permitted their full effect. It is estimated that this subsidy will cost about \$100 million. On the 1st August, 1933, a cotton-processing tax of 4.2 cents per lb. became effective, and it is expected that processing taxes on products competitive with cotton, including rayon and probably silk and wool, will eventually be established. Although it is too early to say whether the scheme will be successful in its object or not, one point (inter alia) which is often ignored must be borne in mind. The exports of cotton from the United States are far greater than the domestic consumption, and if the price of American cotton is elevated beyond a reasonable level other cotton-growing countries will be encouraged to increase their production. Indeed, the announcement of the restriction plan caused spinners to pay more attention to Indian and Upper Egyptian cottons. In addition to this curtailment of supply the Reconstruction Finance Corporation, in July 1933, facilitated the purchase of between 60,000 and 80,000 bales of cotton by Russia by means of loans to American exporters.

In March 1934 the Bankhead Bill was passed to restrict the output of raw cotton. Under the Bill, cotton up to 10 million bales can be marketed free of tax, but above that figure there is to be a tax of 50 per cent of the market value. Farmers, however, are to be allowed to grow and store cotton in excess of their quota, which will bring into existence large private stocks. Some of these are likely to find their way on to the market illegally, and their existence will have a depressing influence on prices, so that it is doubtful whether the Bill will achieve its object of raising prices.

The Cotton Code

On 17th July, 1933, the new U.S. "Cotton Code" became effective. It establishes a maximum working week of 40 hours, fixes a minimum weekly wage of \$12 for the southern mills and \$13 for the northern mills, prohibits the employment of persons under 16 years of age, and limits the use of productive machinery in any mill to a maximum of two shifts of 40 hours each. It is estimated that the effect of the code will be to increase average wages in the textile industry by about 80 per cent and reduce working hours by more than 25 per cent. Any increase in the number of machines per man is forbidden.

The Code also sets up a planning and fair practice agency "for the industry to assist the administrator." This body is to make recommendations for the close control of the industry, the registration of firms, the licensing of new machinery, and so on, with the aim of preserving "a balance of productive activity with consumption requirements."

Apart from its general relation to the Roosevelt "recovery" policy, one advantage of the Code is that it will prevent the southern mills, with their low wages and long working hours, from further undermining the commercial position of the New England mills. It will, of course, undoubtedly result in an increase in the price of cotton goods, and in order to maintain the home market against foreign competition, the Government may be compelled to raise the tariff.

Increased prices, due to the processing tax and the provisions of the Code, have caused a considerable decline in production during the last half of 1933 compared with the first half, the consumption of raw cotton having declined from 3.8 million bales to 2.9 million bales. Although steps have been taken to improve the position by imposing taxes on certain paper and jute products which compete with cotton goods, the position is unsatisfactory, and in many cases trade is being lost to the rayon industry, which has no processing tax. Moreover, although the processing tax is remitted on goods made for export, the effect of the Code has been sufficient to raise prices to such an extent that exports have fallen considerably, in spite of the effects of the depreciated dollar. The monthly average of exports of piece goods fell from 86.1 million square yards in the first quarter of the year to 14.2 million at the end.

(v) CANADA

In 1918 there were 26 establishments with 1.1 million spindles and 21,000 looms engaged in spinning and weaving. Between 1928 and 1933 the number of establishments declined from 88 to 83, the number of spindles from 1.4 million to 1.3 million and the number of looms from 25,800 to 24,000. Approximately 85 per cent of the spindles are rings.

In 1931, out of a total of 84 mills engaged in the spinning of yarn and the weaving of cloth, 15 were located in Quebec, 14 in Ontario, 4 in New Brunswick, and 1 in Nova Scotia. In 1931 the total capital of spinning and weaving firms was \$74.02 million (£15.2 million). The gross value of the products was \$48.14 million (£8.9 million), and the average number of people employed was 15,288. The fifteen plants in Quebec represented 87.9 per cent of the capital invested in the industry, produced 71.8 per cent of the gross value of production and furnished employment to 10,294 employees or 65.2 per cent of the total number employed. Out of the 84 establishments in 1931, 10 firms employed 500 operatives and over, 12 between 200 and 500, 6 between 100 and 200, and 6 less than 100.

In 1933 Canada imported 119.7 million lbs of raw cotton as against 97.4 million in 1932, 136.8 million in 1928, and 92.9 million in 1924. Approximately 99 per cent of the cotton imported is American.

Output between 1924 and 1930 increased *pari passu* with capacity. In 1924 production of all cloths totalled 201 million yards, in 1930 237 million yards, and in 1931 239 million yards. In 1924 grey cloth accounted for 55 per cent of the total production, but in 1931 this had declined to 45 per cent. The increase in total production between 1924 and 1930 is largely accounted for by the increase which has taken place both in that of bleached and of printed and dyed cloths. In 1924 81 million yards of bleached and 55.7 million yards of printed and dyed were produced. In 1930 the corresponding figures were 66.6 million yards and 80.6 million yards. In 1931, however, the production of bleached declined to 29.8 million yards, while that of printed and dyed increased to 101.9 million yards.

In 1931 Canada, besides exporting cotton clothing, exported 801,328 yards of cotton duck and 628,768 yards of cotton fabrics. The United Kingdom took about 15 per cent of the former and about 8 per cent of the latter. The largest markets for cotton fabrics were Australia and New Zealand, which between them took about 66 per cent of the total exports.

Imports of cotton piece goods totalled 89.1 million yards in 1924, of which 52.8 million yards (59.2 per cent) were obtained from the United Kingdom and 36.3 million yards (40.7 per cent) from the United States. In 1930, out of a total of 92.3 million yards the United Kingdom supplied 53.1 million yards (57.5 per cent) and the United States 39.2 million yards (42.5 per cent). In 1932 imports totalled approximately 12.9 million lbs, and of this 5.4 million lbs (42 per cent) were imported from the United Kingdom and 7.5 million lbs (58 per cent) from the United States. In 1933, however, imports were 18.5 million lbs., of which the United Kingdom supplied 55 per cent, the increase in the share of the United Kingdom being partly due to the Ottawa Agreement. In 1931 a change was made in reporting the trade figures from yards to lbs and the figures before and after that date cannot therefore be compared.

As is well-known, however, the Lancashire cotton industry gained very little as a result of the Ottawa Conference. It was agreed that mercerised yarn, whatever the country of origin, should be put on the free list until 31st December, 1933, when a duty of 15 per cent was imposed on foreign yarns, thus giving a preference to the Lancashire spinning trade. The duty on unbleached cotton fabrics was reduced from 17½ per cent, plus 3 cents per lb., to 17½ per cent ad valorem, plus 2 cents per lb. A cotton piece 43 ins. wide, 80 yards long, costs about 32s 9d. to produce. The weight is 21 lbs. The duty on this piece at the new rate will therefore be 7s. 5d. (at par), and with prices cut so fine such a duty is almost prohibitive. The duty on woven fabrics, bleached or mercerised, was reduced

from 20 per cent ad valorem, plus 8 cents per lb, to 20 per cent ad valorem, plus 2 cents per lb. The prospect of Lancashire increasing her trade with Canada is not very great as the Canadian industry is very reluctant to agree to any lowering of the present duties.

(vi) FRANCE

In 1938 France possessed approximately 10.1 million spinning spindles, as against 9.6 million in 1924, approximately 65 per cent of the spindles being ring spindles. In the weaving section there are 192,600 power looms and 8,100 hand looms. A considerable proportion (estimated at more than half) of the spinning and weaving mills have been re-equipped on modern lines since 1918. On the whole, the most recently constructed mills are slightly larger than those erected before the war.

The largest spinning district is the East (Meurthe et Moselle, Vosges, Belfort, Haute-Saône, Doubs), in which, according to the report of the Syndicat Général de l'Industrie Cotonnière Française, 3.25 million spinning spindles and 130,000 doubling spindles are located. The second largest district is Lille, with 1.7 million spinning spindles and 794,000 doubling spindles, while Alsace comes third with 1.8 million spinning spindles and 150,000 doubling spindles. The following table shows the distribution of spindles in France.

FRANCE DISTRIBUTION OF SPINDLES, 1938
(millions)

	Spinning Spindles	Doubling Spindles
East (Meurthe et Moselle, Vosges, Belfort, Haute-Saône, Doubs)	3.25	0.13
Alsace	1.80	0.15
Lille and District	1.71	0.79
Roubaix-Tourcoing, Armentières	1.81	0.25
Normandy and West	1.60	0.11
Others	0.49	0.06
Total	10.16	1.49

The largest weaving district is again the East, in which 81,500 looms are located, while the second and third largest districts are Alsace and Normandy, with 38,300 and 36,000 respectively. The following table shows the distribution of looms in France.

FRANCE DISTRIBUTION OF LOOMS, 1938
(000)

Regions	Number
East (Meurthe et Moselle, Vosges, Belfort, Haute-Saône, Doubs)	81.5
Alsace	38.3
North	6.3
Saint-Quentin and District	3.3
Amiens and District	6.5
Normandy and the West	36.0
Loire and Rhone	24.0
Other Districts	3.0

It is estimated that the French cotton industry employs 285,800 operatives, of whom 68 per cent are females. The spinning section employs approximately 74,900, weaving 127,400, and bleaching, dyeing and printing 88,000.

In 1924 imports of raw cotton totalled 665.6 million lbs, in 1928 810 million lbs, in 1932 539.2 million lbs, and in 1938 767 million lbs. Approximately 75 per cent of the imports in 1932 came from the U.S.A., 14 per cent from Egypt and 6 per cent from British India.

Between 1924 and 1930 the average output of yarn per spindle tended to increase. In 1924, according to the returns of the Syndicat Général de l'Industrie Cotonnière, the average monthly output per spindle was 4.24 lbs, in 1926 4.55 lbs, and in 1929 4.66 lbs. In 1932, however, output per spindle had declined to 3.19 lbs, but it recovered to 4.04 lbs in 1933. Similarly, there has been an increase in the output of cloth per loom from 584 yards in 1924 to 620 in 1926, and 589 yards in 1929.

With the increase in short time since 1930, output per loom has declined, and the monthly average in 1932 was 458 yards per loom, but in 1933 it rose to 575 yards per loom. Although there was an increase in the production both of yarn and cloth between 1924 and 1929, stocks also tended to increase. The average monthly stock of yarn in 1929 was approximately 85 per cent greater than in 1924, while the average monthly stock of cloth in 1929 was about 81 per cent greater than the 1924 figure. In 1931 stocks were again greater, but by the end of 1932 they had declined by 15 per cent from the 1931 total, while orders on hand had increased. In 1933 stocks again decreased—those of yarn by 16 per cent, and of cloth by 25 per cent. Wages were reduced by 10 to 15 per cent in 1932, but remained unchanged throughout the first 9 months of 1933.

Production of yarn in 1932 was 75 per cent, and of cloth 78 per cent of that in 1924. In 1924 exports of yarn totalled 85.82 million lbs., in 1928 52.12 million lbs., in 1932 16.38 million lbs., and in 1933 14.4 million lbs. In 1924 approximately 126 million lbs. of piece goods were exported, in 1928 126 million lbs., in 1932 75 million lbs., and in 1933 88.5 million lbs. The principal markets are Algeria, French Indo-China, Tunis and Madagascar, which between them in 1932 took approximately 70 per cent of the total exports. In 1930 exports of piece goods accounted for approximately 40 per cent of the total production. In 1932 France imported about 8 million yards of cloth, of which 2 million yards (25 per cent) were obtained from the United Kingdom. In 1932, imports totalled approximately 8.7 million yards, of which 60 per cent were supplied by the United Kingdom.

In 1924 the Comptoir Cotonnier Français was established with the object of trading with all foreign countries which had the same tariffs as France. About 150 manufacturers joined in the scheme, which was helped by a loan of £60,000 from the Government, and the participants agreed to allocate a proportion of their output for disposal by the Comptoir.

Import Quotas

During the first part of 1932 an import quota scheme was introduced, as in the case of other commodities. In April of the same year a delegation from Lancashire went to Paris to discuss an agreement with the French Textile Industry. They asked (1) that the quota should be fixed for a fairly long period in order to do away with prevailing uncertainty, (2) that the quota should be made seasonal, (3) that Lancashire should be given as large a quota as possible. An agreement not unfavourable to Lancashire was reached, but could not be ratified by the French Government until similar agreements with other countries had been negotiated.

As from 1st August, 1932, the temporary monthly quotas were substituted by quarterly quotas which have, on the whole, been welcomed by Lancashire and are more or less in line with the provisional agreement. As from 1st October, all imports had to be accompanied by a quota licence, the issue of which was placed in the hands of the Manchester Chamber of Commerce.

In January 1934 new quota arrangements were brought into force according to which, although bleached and unbleached piece goods were restored to 100 per cent of the 1932 import level, yarns were cut to 25 per cent. This led to strong protests from the British Government, which complained of discriminatory treatment, later to reprisals, and finally to denunciation of the trade agreement. Negotiations were, however, soon renewed and the French Government made a conciliatory gesture by reducing the turnover tax. Although the subsequent discussions have revealed wide divergences it is expected that an agreement will be ultimately reached.

(vii) BELGIUM

The Belgian cotton industry increased its number of spindles from 1.7 million in 1924 to 2.1 million in 1933, of which 1.7 million (81 per cent) are ring spindles. Yarn production in 1924 totalled 104 million lbs., in 1929 155 million lbs., in 1930 135 million lbs., and in 1931 there was a marked decline to 114 million lbs.

In 1930 imports of raw cotton totalled 184 million lbs., of which approximately 85 per cent was Indian, 48 per cent American, and 7 per cent from the Belgian Congo. In 1932 total imports were 144.9 million lbs., of which 52 per cent was American, 19 per cent Indian and 16 per cent from the Belgian Congo. It is stated that the crop in the Ruzizi Valley in the Congo is particularly good, and the excellent results are attributed to the methodical development of cotton cultivation under the guidance of the Government.

In 1933 Belgium imported 8.54 million lbs. of yarn as against 7.83 million lbs. in 1928. Imports of piece goods in 1933 totalled about 3.7 million lbs. as against 5.5 million lbs. in 1928. The United Kingdom in 1933 supplied approximately 49 per cent of the total cloth imports. In 1924 Belgium exported 20.6 million lbs. of yarn, in 1928, 17.9 million lbs., in 1932 7.2 million lbs., and in 1933 8.5 million lbs. Exports of yarn in 1924 were approximately 23 per cent of the total production, but

by 1929 the figure had declined to 9 per cent so that the home market was taking a much larger share in 1929 than in 1924. Exports of cotton piece goods in 1924 totalled approximately 81.4 million lbs., in 1928 60 million lbs., in 1932 81.9 million lbs., and in 1933 84.8 million lbs. Approximately 50 per cent of the cloth produced is exported, and Belgian cloth exports in 1924 represented 1.8 per cent of the world total. In 1930 her proportion of the world trade had increased to 3.8 per cent. Up to 1931 one-third of Belgian exports went to Great Britain, and the imposition of the British tariff on cotton goods affected Belgium more than any other country. This reduction in trade caused a considerable increase in unemployment.

The main combine in the Belgian cotton industry is "La Textile," which controls 1.2 million spindles and 200,000 doubling spindles—about 65 per cent of the total spindles in the country. The main firms in the combine are the Union Cotonnière, the Usines Cotonnières Gand-Zele-Tubize, the Cotonnière Nouvelle Orléans and Motte Frères, and these firms between them control more than half the voting power of the combine. La Textile undertakes the selling of yarn for its members both in the Belgian and foreign markets, with the exception of England, where member firms had established representatives before the war.

(viii) HOLLAND

In 1924 Holland possessed 832,000 spindles and 49,000 looms, while in 1929 the corresponding figures were 1,168,000 and 55,000. It is thus seen that the increase in the number of spindles (40 per cent) has been proportionately greater than that of looms (12 per cent). In 1921 there were approximately 14 spindles to each loom and in 1929 21 spindles. Spindle capacity is, however, still below consumption of yarn, although this disparity is disappearing, for while there was a decrease in the number of looms from 55,000 in 1929 to 54,800 in 1931 there was a further increase in the number of spindles from 1,168,000 to 1,240,000. In 1933 spindles totalled 1,225,000, of which 954,000 (79 per cent) were ring spindles.

Following this increase in spinning capacity, yarn imports were declining even before the present depression. In 1924 imports of yarn into Holland totalled 70.2 million lbs., in 1930 59.1 million lbs., in 1932 88.6 million lbs., and in 1933 28.8 million lbs. In 1924 and 1929 approximately 55 per cent of the imports came from the United Kingdom but in 1933 this percentage had increased to 64. In 1928 imports of yarn were equivalent to 67 per cent of the home production, and in 1931 to 45 per cent. In 1933 imports of piece goods totalled approximately 8.1 million lbs. as against 13.6 million lbs. in 1932, and 17 million lbs. in 1928. More than 50 per cent of imported piece goods are obtained from the United Kingdom.

The Dutch industry depends mainly on two outlets, namely the home market and the Dutch East Indies, which takes almost 60 per cent of the total exports. In 1929 sales in the home market and abroad amounted to Fls 126.9 million and Fls 112.3 million respectively. In 1931 the corresponding figures were Fls 87.6 million and Fls 57.5 million. As a result of reduced exports competition in the home market has been extremely severe, and prices have fallen to a low level.

The majority of firms in the Dutch cotton industry are family concerns, most of which are organised on a vertical basis and operate independently.

Japanese Competition in the Dutch East Indies

Dutch manufacturers have suffered considerably from Japanese competition in the Dutch East Indies, and in July 1932 they carried on an extensive agitation for the regulation of imports. The Dutch Government, however, would not agree to their proposals, as the prevailing opinion in the colony favoured buying in the cheapest market and the Dutch Government was anxious not to defy its wishes. Some of the leading Dutch manufacturers have, as a result, decided to establish factories there. It is interesting to note that their cost calculations are based on the following wage rates: Fls 0.60 to 0.65 per day for ordinary labourers (8s. to 8s. 9d. per week at the present rate of exchange), and Fls 0.70 to 1.60 per day for trained textile operatives (9s. 6d. to £1 1s. 6d. per week). A commission of leading Dutch cotton men, including Dr Wisselink, is leaving in May 1934 for Java in order, it is understood, to make final arrangements. As a result of the increase in the Indian tariff (see page 42), still severer competition has been experienced from Japan, since Japanese goods formerly sold in India are being diverted to other Eastern markets, for instance to Java.

In September 1932 a quota was introduced on cotton goods entering Holland, and in December 1932 dyed, printed and coloured woven fabrics were subjected to the new quota system. The quota was fixed at 50 per cent of the value of the average imports for a nine-month period during 1929-31. Although this was a serious blow for British trade, grey cloth, which represents about half the British exports to Holland, was not affected. It was later reported, however, that grey and bleached cloth

were expected to be subject to quotas later, although yarn imports would probably remain free. The quota which came into force on 1st December, 1932, ran till 1st September, 1933.

In December 1933 the first step was taken towards co-operation in the industry. A general agreement was drawn up to regulate prices, wage rates and sales, both in the home market and for export. It is hoped that this agreement will form the basis for closer co-operation in the industry.

(ix) GERMANY

In 1933 the German cotton industry had 9.8 million spindles and 250,000 looms. Over 65 per cent of the spindles are ring spindles, and 10 per cent of the looms are automatic. In 1932 half a million spindles were scrapped.

In 1933 Germany consumed approximately 615 million lbs of raw cotton. About 70 per cent of the cotton spun is American and about 11 per cent Indian.

Since 1927 the German industry has continually worked short time. In 1928 about 611 million lbs of yarn were produced, and in 1930 and 1932 there was a decline to 90.3 per cent and 91 per cent respectively of the 1928 figure. In 1928 the weaving section worked 83.9 per cent full time and in 1930 and 1932 68.3 per cent and 70.1 per cent respectively.

The German industry is the eighth largest in the world, though only about 2 per cent of the total yarn production and 10 per cent of the cloth production is exported. Exports of piece goods in 1928 and 1932 amounted to approximately 89.0 million lbs and 17.6 million lbs respectively, and in 1933 to 16 million lbs. The principal market up to 1932 was the United Kingdom, which in 1928 took about 18 per cent of the total exports, but in 1932 this fell to 10 per cent, while exports to Holland accounted for 18 per cent. In 1928 imports of yarn totalled 104.7 million lbs, of which 42 million lbs (40 per cent) were imported from the United Kingdom. In 1932 total imports were 32.2 million lbs, of which 24.2 million lbs (75.5 per cent) were from the United Kingdom. While in 1933 total imports were 33 million lbs, the share of the United Kingdom being 79 per cent. In 1928 imports of cotton piece goods totalled approximately 83.4 million lbs of which the United Kingdom supplied 9 million lbs (27 per cent). In 1932 8.8 million lbs were imported, of which 4 million lbs (45 per cent) were obtained from the United Kingdom.

The Baumwoll-Nahfaden-Syndicat controls the cotton thread branch of the industry, but in other branches little progress has been made in co-operation. In South Germany, however, a central price-reporting office was established before the war, and although it exists primarily for the pooling of information, it has resulted in greater uniformity in yarn and cloth prices. Moreover, it has been responsible for the establishment of uniform terms of payment and delivery for yarn and cloth.

The largest concern is the Dierig-Hammensen group which controls 900,000 spindles and about 18,000 looms, while other amalgamations are the Kolbermoor group with 375,000 spindles and approximately 5,000 looms, and the Sddeutscher Spinnweber-Verband, with 280,000 spindles and 6,000 looms.

Attempts have been made to operate short time and basic price schemes, but these have met with only limited success. In June 1932 an arrangement providing for 20 per cent output curtailment was introduced, and as this proved successful the scheme was extended until September 1932, after which attempts to prolong the scheme failed because some firms wished to reap what benefit they could from the customary seasonal improvement in trade. However, in July 1933 negotiations were commenced between spinners for the establishment of a cartel, but nothing came of this either, owing to various divergences of interest. In 1933 an agreement was reached between the Employers' and Operatives' Associations whereby wages were stabilised at the current figure until January 1934.

Import Duties and Quotas

On 2nd August, 1933, import duties on cotton yarns were raised. The rates were on the average more than doubled, for single yarns up to No. 11 English the duty was increased from Rm. 12 to Rm. 23 per doppelzentner (2 quintals or 441 lbs), for Nos. 12 to 17 from Rm. 16 to Rm. 30, for Nos. 18 to 22 from Rm. 22 to Rm. 40; for Nos. 23 to 32 from Rm. 28 to Rm. 56, for Nos. 33 to 47 from Rm. 36 to Rm. 80; for Nos. 48 to 63 from Rm. 44 to Rm. 120, and for Nos. 64 to 83 from Rm. 56 to Rm. 150. The rates for numbers over 83's remained unchanged, and an exception was made—presumably in the interest of the German export trade—for yarns over No. 47 English which are imported for use in the manufacture of lace and net, the rate being fixed at Rm. 20 in this case. The increases followed a protest meeting held in Berlin by German cotton spinning firms, and have caused considerable anxiety in Lancashire, as Germany was the largest export market for British yarns. As from October 1933 an alteration was made in the method of calculating import quotas, but this did

not make much difference to Lancashire, and by March 1934 the whole year's quota for imports from this country had been used up, which led to protests at the German Handelsamt, particularly as Switzerland had been given a quota of 7,000 quintals against 4,000 for Great Britain, whence previously the greater part of the yarn imports had been obtained

Partly owing to the rise in imports in the first part of 1934, caused by speculative buying and partly owing to the increasingly difficult trade balance position, the German Government passed at the end of March a Bill prohibiting temporarily the import of certain raw materials, including raw cotton, and establishing import Control Boards (as from the beginning of May 1934) which aim at the most favourable distribution of available raw materials among industry. Actually German imports of raw cotton in the first two months of 1934 were less than in the corresponding period of 1933, but visible supplies at Bremen were 687,000 bales in the middle of March (about 6 months' consumption), compared with 622,000 bales a year ago.

The important transit trade will not be interfered with.

(x) ITALY

In 1921 Italy possessed 4.5 million spindles and 122,000 looms. In 1933 the corresponding figures were 5.4 million spindles and 152,000 looms. The average size of the mills both in the spinning and weaving sections is small. It is stated that about 80 per cent of the spinning mills, of which there are approximately 205, have less than 50,000 spindles each. There are about 850 weaving sheds, of which 90 per cent have less than 500 looms.

Lombardy is the principal centre for the cotton industry, and in 1930 possessed 2.4 million spindles (46 per cent of the total), while Piedmont, the second most important centre, had 1.5 million. Of the 5.4 million spindles in Italy only about 800,000 are of the self-acting mule type, and the remainder (89 per cent) are rings.

In 1924 Italy imported 444 million lbs. of raw cotton, of which 258 million lbs. (58 per cent) came from the United States, 137 million lbs. (31 per cent) from British India, and 43 million lbs. (9.7 per cent) from Egypt. In 1932 imports of raw cotton totalled 419 million lbs., of which 323 million lbs. (76.5 per cent) were imported from the United States, 32 million lbs. (7.6 per cent) from British India, and 51 million lbs. (12 per cent) from Egypt. In 1933 imports are estimated at 485 million lbs.

Between 1924 and 1929 the production of yarn increased from 385 million lbs. to 468 million lbs., while in 1930 there was a decline to 383 million. Approximately 70 per cent of the output of yarn is consumed in Italy. The production of cloth increased from 293 million lbs. in 1924 to 310 million lbs. in 1929, and this increase in production caused a decrease in imports from 5 million lbs. in 1924 to 3.5 million lbs. in 1929. In 1931 the production of cloth declined to 220 million lbs. Exports of cotton cloth have increased from 113 million lbs. in 1924 to 125 million lbs. in 1929, while there was a decrease to 84 million lbs. in 1931, and to 75 million lbs. in 1933. Exports of piece goods from Italy amount to approximately 6 per cent of the world exports, the principal market being the Argentine, which takes approximately 20 per cent of Italy's total exports. Imports of cotton piece goods (non-mercised) in 1933 totalled about 1.3 million lbs. as against 4.4 million lbs. in 1928.

In 1929 the *Sindicato Italiano dei Filatori* was established with the object of promoting integration amongst spinners and regulating yarn prices in the home market. The *Sindicato* has met only with partial success and has not been supported by more than 60 per cent of the spinners. In January 1933 it was announced that the Italian spinning industry was to be reorganised so as to bring all mills into one syndicate, based on a production quota system. According to a Government decree provided 75 per cent of the members in any industry agree on such a course, such a syndicate can be formed compulsorily.

In March 1934, owing to the growth of foreign competition, particularly that of Japan, the Government conferred full powers on the Italian Cotton Institute, formerly a purely statistical organisation, for the reorganisation and control of the industry. All firms are to be obliged to join the Institute, which will have full powers to liquidate or merge the weaker units, to regulate conditions of labour, to determine quotas for production and to fix minimum prices for the home market. In addition, the duties of the Institute will include assistance to the export trade and it is stated that the first step towards reduction of costs will be the bulk purchase of raw materials on the Russian system.

(xi) CZECHOSLOVAKIA

Czechoslovakia, in 1933, possessed 3.6 million spindles and 110,000 looms. Approximately 2 million (56 per cent) of the spindles are ring spindles. The cotton industry, during the post-war years, has had to face serious difficulties which are largely the result of the war. In particular, the break-up

of Austria-Hungary, and the erection of tariff walls, reduced the population of the home market from 50 millions to 14½ millions.

In 1924 Czechoslovakia imported 219.6 million lbs of raw cotton, of which 43.3 million lbs (20 per cent) were imported from the United States, 5.6 million lbs (2.5 per cent) from British India, 2.6 million lbs (1.2 per cent) from Egypt, and 108.3 million lbs (49 per cent) through Germany. In 1932 imports totalled 175.2 million lbs, of which 58.7 million lbs (34 per cent) were imported from the United States, 9.2 million lbs (5.3 per cent) from British India, 20.5 million lbs (11.7 per cent) from Egypt, and 77.5 million lbs (44 per cent) through Germany. In 1938 imports totalled 152.8 million lbs.

In 1924 exports of cotton yarn totalled 40 million lbs, in 1928 57.4 million lbs, in 1932 88.8 million lbs, and in 1938 27.2 million lbs. The principal market is Rumania, which in 1932 took more than half the total exports. Exports of cotton piece goods in 1924 totalled about 69 million lbs, in 1928 81 million lbs, in 1932 22 million lbs, and in 1938 16 million lbs. The principal markets are Austria, Yugoslavia and Rumania, which between them take more than half the total exports.

There has been little co-operation between producers, largely due to racial differences. In November 1929 an association was formed with the object of stabilising yarn prices, but it broke down in 1930. One of the reasons for the failure of this scheme was the excess capacity of the spinning section, in which there is a marked difference between the efficiency of the firms. A scheme has therefore been proposed to reduce American spindleage by 20 per cent, but owing to the divergent views, both of bankers and the important firms, the scheme has not yet been put into practice. The success of some co-operative scheme is essential if the industry is to be kept solvent.

In 1932 the formation of a cartel in the coarse spinning section was announced. The cartel controlled prices and production of coarse cotton yarns, but did not control the selling organisations. Approximately 95 per cent of the coarse spinners were members, but the cartel did not succeed in raising spinners' margins by more than 2 per cent in the aggregate.

It is interesting to note that as a result of negotiations between the German railways and Czechoslovakian cotton spinners, freight rates on transit shipments of cotton from Bremen and Hamburg have been reduced to such an extent that it is thought to be no longer to the advantage of spinners in Czechoslovakia to route their shipments through Gdynia instead of through the German ports.

(xii) POLAND

Since the war the Polish cotton industry has made rapid progress. From 1924 to 1930 the number of spindles increased from 1,101,000 to 1,554,000, while during 1932, in spite of adverse trading conditions, there was a further increase in equipment by 50,000 mule spindles and 250,000 ring spindles (an increase of 20 per cent). In 1932 Poland consumed 117 million lbs of raw cotton, 80 per cent of which was American, and in 1938 consumption was 131 million lbs. Approximately 60 per cent of the spindles are rings.

This increase in Polish capacity and production has only been possible by the expansion of the home market. Before the war the mills had been largely dependent on the Russian market, and the loss of this was not completely compensated by the acquisition of parts of Germany and Austria. In 1924 approximately 13 per cent of the total production was exported. Since 1927, however, there has been a rapid decline in exports, and in 1930 less than 6 per cent of the production was exported. In 1924 exports of yarn totalled 2.1 million lbs, in 1930 8.9 million lbs, and in 1938 1.9 million lbs. Exports of cloth have fallen from approximately 11.4 million lbs. in 1924 to 7.3 million lbs. in 1928 to 1.4 million lbs. in 1932, and to 1.4 million lbs. in 1938.

Following on the depression, various steps have been taken to prevent the situation from deteriorating still further. The first of these was taken in 1929 when the Government prohibited three-shift working. A further one was when firms controlling about 90 per cent of the total spindleage reached an agreement on the regulation of production. This cartel agreement, however, broke down in 1930, owing to the fact that no account had been taken of the necessity to balance the production of combined spinning and weaving firms. In 1931 a new agreement was reached and this difficulty was removed.

There is at present no important amalgamation in the industry, though the banks are considering proposals for integration. A special export association has been formed with the object of studying foreign markets.

Since 1st January, 1933, the most-favoured-nation duty on raw cotton of 1 zloty per 100 kilograms (.005 cents per lb.) has only been granted to imports via the Polish ports, whereas imports across the land frontiers must pay 6 zlotys or .030 cents per lb. This means that all cotton imported in the future will be through Gdynia, and Polish buying from Bremen will be definitely discontinued.

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P E P (POLITICAL AND ECONOMIC PLANNING)

INDUSTRIES GROUP

HOUSING ENGLAND

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PREFACE

In attacking the problems of working-class housing, we consider it vital to distinguish clearly between three separate factors involved

(1) In the first place, there is the *housing problem* proper, which is basically a problem of "bricks and mortar." It involves the question of shortage—the number of houses which must be supplied in order to house the working-class population at a satisfactory standard of accommodation, the question of unfit houses which ought to be pulled down; of others which require thorough overhauling to bring them up to the required standard; and of yet others, which, while individually fit, ought to be pulled down because, collectively, they have been too densely or inconveniently arranged on the ground.

(2) In the second place, there is the *rent problem*, which is essentially the problem of establishing a system whereby *all* working-class houses in the country will return to their owners neither more nor less than a reasonable economic rent. This probably involves some form of universal rent control (as distinct from tenancy control), which must not be punitive, but must aim at the prevention of excessive profit making.

(3) In the third place, there is the *problem of rent-paying capacity*, which should be solved on broad lines, by giving rent relief to *all* tenants requiring it according to their needs, irrespective of whether the landlords are Local Authorities, private owners, or housing associations.

This third problem is really a problem of poverty and it is important that the problems of housing should be distinguished from the problems of poverty. The first step in a strictly *housing* policy must be to reduce the inclusive capital costs of working-class housing. We are convinced that if this objective is pursued systematically, taking each of the main factors in turn, very substantial savings can be achieved. On the basis of the most efficient practice of the present time we believe rents of 10/- to 11/- per week inclusive to be economically feasible, and a substantial improvement on such rents is by no means impossible.

If a large supply of houses of a satisfactory standard were made available at such rents, we feel that a very great contribution to the solution of the housing problem as a whole would have been made. There is, however, ample evidence that a considerable proportion of working-class families find rents of 10/- to 11/- beyond their real capacity. If, after all possible efforts to ensure the efficient provision of working-class houses had been made, a gap were still found between the rents which are economic to landlords and the rents which tenants can reasonably pay, this would be *prima facie* evidence of an essential disparity between the cost of house accommodation, expressed as rents, and the general level of family income, through wages and public assistance relief, of the lowest-paid workers. Such disparity would call for adjustment as a problem of poverty and national economy, not of housing.

We believe, however, that hitherto the actual "bricks and mortar" problem of building the houses, and making and purchasing the materials for them, has not been carried out with an efficiency comparable with that obtaining in other great industries, partly because of the great diversity of materials and technique involved, partly because of unnecessary restrictions, and partly, no doubt, because the subsidisation of any producer always dulls the spur to efficiency. It is this first of the three main factors in the housing problem, the one most strictly and directly connected with the building of houses, with which we are primarily concerned in this report.

At the present time the demand for houses is being supplied on the one hand by housing activities of local authorities expanding upwards, and on the other

hand private enterprise which is gradually working downwards into the lower rental field. To what extent is any considerable part of national housing needs left unsatisfied between these two converging activities?

That some gap exists has been generally, although never precisely recognised, and a number of suggestions have been made for filling it. Such suggestions fall into three groups—first, those proposing an expansion of municipal activity; secondly, those proposing a further stimulation of private enterprise; and thirdly, those which suggest the immediate creation of some kind of National Housing Corporation, Commission, or Board, to undertake without delay large-scale housing operations all over the country. All these suggestions have their strong and their weak points. The Government, which has held strongly to the private enterprise theory, congratulates itself on the fact that 266,000 houses have been built in the financial year 1933-34, and that what are called working-class houses are now being provided at the rate of 150,000 a year. While exact information is not yet forthcoming, it is certain that the contribution which is being made by private enterprise towards the provision of houses to let at 10/- inclusive or less is as yet inconsiderable in relation to the need. Private enterprise has the advantages of being flexible and of tending to deflate costs in the building industry, but it has the drawbacks of being tied to a preoccupation with mere profit-making which is out of place in the solution of pressing social difficulties, of being disorderly in its operations, and of being largely divorced from subsequent management and maintenance.

On the other hand, the type of solution represented by a National Housing Corporation, although immediately attractive, nevertheless on further examination presents serious drawbacks. While it is generally recognised that speed is a prime consideration, any enterprise confronted with the enormous task of building up an organisation from the very beginning without the necessary foundation of information which does not yet exist, of experience which has yet to be secured, of personnel which has yet to be trained, and of a building materials and contracting industry which has yet to be properly organised, would be likely to lead only to failure and disillusionment.

Finally, the Minister has made it clear that it is undesirable for local authorities to undertake additional housing activities before assurance is forthcoming that the prior issue of slum clearance has been successfully dealt with.

In the past it has been observed that any large Government-backed effort has resulted in providing houses mainly for people whose need was by no means greatest, and has put large amounts of public money into the pockets of the building, and especially the building materials, industries through inflation of prices. In the meantime, unsubsidised housing enterprise has concentrated on houses for sale which yielded the greatest profit. Since the revision of subsidy policy building costs have been brought down. No scheme can be considered satisfactory which does not provide for keeping them down to the lowest possible level. Already there is considerable danger of a fresh upward swing in prices, and a new corporation committed before public opinion to the rapid erection of houses on a spectacular scale and harassed by all the initial difficulties which have been seen, for example, in the case of the Marketing Boards, would be an easy prey to the promoters of price rings.

While the case for a new organisation is strong, we must guard against overstating it. The advantages of large-scale operations do not automatically accrue from the moment such operations are begun: on the contrary, they are only potential advantages, and in order to realise them in practice large-scale effort and expenditure is essential. We do not, therefore, favour the establishment of a national organisation with a monopoly for dealing with any part of the housing field. Nor, on the other hand, do we favour leaving things as they are, with an unbridged gap between the present operations of private enterprise and local authorities. To fill this gap we favour a model, more flexible than any of the proposed national organisations, a system which would claim no monopoly, and would not attempt in the first instance to build indiscriminately all over the country, but would begin operations area by area and expand them at a manageable pace. For convenient reference we call this proposed organisation the "housing company." There need not necessarily be only

one such concern. A number of companies in various areas might be set up, preferably with some system of central co-ordination. It should be noticed at once that the essential function of the "housing company" will be that of the house owner—that is to say, of surveying, buying, and holding land and of owning and managing houses. We do not propose that the "housing company" should normally undertake the functions of the building contractor, such as buying of materials, execution of contracts and the actual construction of houses.

An organisation of the type of the "housing company" requires, in our opinion, a corresponding organisation of equal weight to carry contracts, which we call for convenience the "building company." This company would be concerned with the actual erection of houses to the order of the "housing company," and would carry out the main items itself, making long-term contracts for the supply of materials, but possibly sub-letting certain of the minor bills to specialist firms. Where the contracting organisation is working in close and continual contact with the building owner, as under this system, a certain danger of a decline in technical efficiency arises, and with the object of preventing this a special type of contract has been evolved which introduces safeguards to ensure the continued efficiency of the building company.

One of the main advantages of such an organisation would be that of providing a basis for the bulking of orders for the building materials required for the work of the "housing company," and at the same time increasing considerably the buying strength of the contractor, whose present weakness in this respect tends to deprive himself of legitimate profit and his client of the most efficient and economic service. It would provide also for continuity of present supervision of work which must tend to promote standardisation of method in assembly, which is as vital to cost reduction as standardisation of materials. It is significant that the building industry itself is feeling the need for this, and there are nuclei of several organisations in the industry, so far undirected, but awaiting the impetus of a clearly defined policy.

The building and contracting industries cannot by themselves undertake the provision of working-class houses at low rents; nor is it traditionally their function to attempt to do so. At the same time, working-class housing represents an enormous market for the contracting and building materials industries, and in order that they may be in a position to supply it economically reorganisation resulting in reductions in costs is imperative. Such reorganisation must depend on the provision of a constant load, which bodies of the type and scope of the housing company outlined above are best suited to meet. These are material considerations, distinct from, although complementary to, the social aspect of housing, which is not unnaturally more frequently stressed.

As we have already noted, the "housing company" would not itself be directly responsible for actual building work. Moreover, in its proper field of house ownership, it would have to go through a series of stages of development. It would begin its operations, area by area, in that part of the housing field which is most neglected by present and impending efforts—the provision of low-rented working-class dwellings in the immediate neighbourhood of industrial towns. It would not attempt to operate either in the old built-up districts of such towns, or in rural areas where the wage position of the workers presents special rental difficulties, probably necessitating a subsidy. Naturally the "housing company" would operate in the first instance in areas where an expanding industry offered an assured demand for the accommodation of its workers. In many cases such expansion is in fact taking place without any related provision of housing and workers have to live in often unsuitable and overcrowded dwellings at inconvenient distances from their work. In other cases plans for the removal of factories and relief of urban congestion are being postponed, because industry is unwilling or unable to assume housing responsibility for its workers and no other agency is ready to provide for them.

At the outset, the company would concentrate on building dwellings of standard type, and would attempt to realise, on a much larger scale, savings and improvements which are at present realised only locally and sporadically. It is impossible to justify the variations in building costs throughout the country of the more or less standard three-bedroom non-parlour house during recent months. In no part of the housing

field is technical and economic research on a really comprehensive scale more necessary than in this matter of building costs. Although it should properly be the function of the building industry as a whole to undertake such a research programme, it would be unduly optimistic to suppose that the industry has yet developed a collective organisation capable of putting such work in hand immediately. While a certain amount of research is being done, it is concerned with materials rather than methods and is not universally or easily available. We regard it as essential that there should be Governmental initiation of a centralised Housing Research organisation to co-ordinate existing efforts as far as possible through existing organisations. We also consider that careful attention should be paid to the investigation of new methods. The potential savings both in labour and material through any one individual improvement are probably small, but cumulatively important.

The skilful purchasing of land on a large scale would be essential for the successful operation of the "housing company." It would be necessary to buy land in anticipation of future needs with, of course, freedom to resell should this prove desirable. Having bought sites, it would prepare development schemes which would be put up in the ordinary way to the local authorities concerned, and if necessary to the Ministry of Health. Normally these schemes would provide for a certain proportion of the land to be built on, for part to be reserved as open spaces and for part to be kept as sites which might be let or sold at a profit for non-residential uses, such as shops.

One of the main initial difficulties of the "housing company" would be personnel. Personnel with experience in large-scale operations of this type practically does not exist at present, and could only be trained gradually. The speed with which it could be built up would be one of the limiting factors of growth. Finance would be a further limiting factor. If continuity is to be secured a financial structure which is adjustable to varying circumstances is an essential feature. We have in mind that the "housing company" should in the first place be incorporated as an ordinary limited liability company with a capital structure containing a substantial proportion of equity shares to bear the risks of initiation and fluctuation. It is not proposed that a Government guarantee of interest should be sought. We have, however, considered the desirability of changes in the constitution of Public Utility Societies and have found that under certain conditions the "housing company" might be able to obtain special borrowing facilities.

In deciding on this particular form of organisation we have been guided by three principal considerations. The first is political, as an essential and long-term service, housing must as far as possible be protected from dislocation by a change of Government, and the operating structure removed from the controversial field of party politics. Any satisfactory structure should, therefore, be capable of functioning without essential alteration, whether on its original private enterprise basis or if converted into a State service. It should be possible for the organisation to continue even if the main policy and the character and personnel of its directorate were completely changed. The second consideration is economic. It is impossible to get down with any assurance to the lower rent levels required without large-scale operation and the elimination of the speculative profit element. This leads to the third main consideration which is social. The provision of decent accommodation for the low-paid worker is not enough, it must be followed up by a system of management which will ensure that new property does not degenerate and recreate the old problems of slum conditions, overcrowding, and disrepair. Here again, efficiency and economy, which can only be secured by large-scale operation, are just as essential as in the actual building of houses.

When we began our investigation of housing needs and possibilities we were forced to recognise that there could be no sound solution of the housing problem which did not provide for reconstruction of the building and building materials industry, overhaul of building regulations, the setting up of national standards and so forth. Our enquiries have therefore led us over an extremely wide field and to follow out all their implications in full would require many more months, if not years, of research. In view of the social and economic urgency of action we have therefore decided to make available for discussion our findings to date.

SUMMARY AND CONCLUSIONS

1. The main approach of the Group to the problem of housing has been through the Building Industry. One reason for this approach is that, while great attention in the past has been given to the stimulation by subsidy or otherwise of the provision of working-class housing, little or no attention has been given to the smooth and efficient functioning of the machinery which must supply the houses.

2. The vital nature of the social aspect of working-class housing is accepted, but it is not commonly appreciated that working-class housing must also be the focus for re-organisation of the building and building materials industries. It is impossible to divorce the problems of building working-class houses from those of the building industry as a whole.

3. We are satisfied from our investigations that a well-organised building industry could provide working-class houses on an economic basis. By this is implied a maximum inclusive rent of 10/- to 11/- for a three bedroom non-parlour house of about 760 square feet superficial area. We have found that many errors and conflicting opinions on cost estimates have arisen through omission of some of the relevant factor from consideration, and we have attempted to set out the chief of these factors and to show their relative influence on all-in costs.

4. We believe that the only way of effectively reducing rentals is by a systematic attack on all contributory cost factors, including ownership and finance, materials, construction, management and maintenance.

5. We have divided up our Report under the following headings:

- (1) The national organisation of working-class housing and the present organisation of building.
- (2) Summary of building and housing legislation.
- (3) Standards and requirements.
 - (i) Design: number of rooms: size: amenities, etc.
 - (ii) Number of houses with division according to types.
- (4) Survey of costs and finance.
- (5) Analysis of all-in-capital costs.
 - (i) Land charges
 - (ii) Labour
 - (iii) Materials
 - (a) Bricks, tiles and slates
 - (b) Timber and woodwork
 - (c) Cement, concrete and aggregates.
- (6) Management, upkeep and repair.
- (7) Research and statistics.
- (8) Rates.
- (9) Openings for cost reduction.

6 As regards legislation we have observed that most attention has so far been devoted to the subsidy provisions affecting working-class housing, and to the establishment of machinery for the regulation of housing by local authorities. We feel that insufficient attention has been given to the chaotic legislative position affecting building and the building industry, particularly the restrictive and antiquated regulations which, in effect, limit the rate of introduction of new materials and methods. We are convinced that this has been an important factor in retarding cost reduction in building as compared with other industries.

With this object in view we have suggested as a long term proposal a consolidation of building law, and as a short term proposal the setting up of an authority with adequate powers to facilitate the rapid adoption of new methods and materials subject to the approval of Government research authorities. In this connection we consider that provision for full scale experiments is essential.

7. (1) Standards of design and amenities. We consider the establishment of national minimum standards of accommodation and amenities to be an essential part of any scheme affecting the provision of working-class housing, and suggestions as to the standards to be adopted are included in this Report. While we regard a certain degree of flexibility in such standards as necessary, we believe it essential that they should be laid down by a competent authority on a national basis before any further attempt is made to organise the large-scale provision of working-class housing. We have particularly stressed the need for considering the relation between amenities and their cost to the tenant

(11) Requirements as to number of houses. We recognise that an estimate, as reliable as possible, of the size of the market is necessary before any effective plan can be evolved. A large number of widely differing estimates have already been made, and we have examined these critically with a view to determining the more probable of them. In this we have been hampered by the serious lack of established standards and related statistics. We have given consideration to the relation between the number of private families and the future population, to the division of working-class families according to wage groups—about which, unfortunately, very little information is available—and to requirements in terms of dwellings divided according to size of families.

8. As far as costs are concerned, we have given emphasis to the lack of information about the composition of all-in costs of working-class housing. The data we have obtained has led us to certain tentative conclusions, and in particular to the effect of variations in such factors as land cost, density, rate of interest and sinking fund, brick prices, etc., on rentals. We have been struck by the wide variations in the cost of similar housing in different parts of the country, and have drawn certain conclusions from these variations. The inter-relation of building materials purchase and prices with housing policy and finance is well known to be a main difficulty. Too often in the past ambitious schemes have been wrecked by rises in the price of building materials, and we do not consider that the departmental committee appointed to watch over this question has served a very useful purpose. We feel that, apart from substantial technical economies in production or distribution (which are illustrated in dealing with specific materials), the main attack on “rings” among building materials manufacturers must come through the grouping together of organisations sponsoring building, or of builders themselves, with the object of increasing their purchasing strength in relation to the sales strength of the materials producers, and of offering the producers a constant demand over a period of years in exchange for substantial price concessions.

There are two sharp divisions of interest in the building industry: first between the building owner and the builder, and second between the builder and the building materials manufacturer, and we consider that this latter division will be minimised if a constant demand can be provided.

9 We believe that a careful analysis of all-in costs with a view to systematic reductions offers far greater potentialities than are commonly recognised.

(i) With regard to land costs, we have been struck by the wide and apparently reasonless variations in the prices at which land can be acquired in different parts of the country. We believe that, with skilful buying, large amounts of land could be acquired in different places at prices which would allow the economic construction of houses within the means of working-class tenants. We do not necessarily regard this, however, as a final solution of the problem, and some provision may later become necessary in order to prevent speculation in land and rises in price due to development of adjacent sites towards which a land-owner has made no contribution.

We have attempted to estimate at what prices of land the construction of flats becomes more economic than that of cottages, and of cottages more economic than that of bungalows; and in connection with the suitability of land for housing, we have particularly emphasised the importance of cheap transport, and of relating housing to industrial development. We have been unable to do more than touch on certain aspects of town and country planning problems, such as zoning and ribbon development, but we have tried to show how these are related to housing. In connection with density we have stressed the need for a not too rigid insistence on the maximum of 12 per acre, given certain safeguards in the way of communal amenities

(ii) Our approach to the labour problem has been by way of attempts to show how the output per man could be increased. We have surveyed the wage negotiation machinery and compared average wages in the building industry with those in other industries, but in neither case have we found any important changes to be necessary. We have also examined the common belief that the output per man in certain of the principal trades, such as bricklaying, is much lower at the present time than before the war, and although exact data are lacking we do not believe this to be the case when similar classes of work are compared and the decrease in working hours per day is taken into account.

We believe, however, that there is very great scope for improvement in the utilisation of labour, the serving of materials, the arrangement of scaffolding and use of mechanical aids to reduce fatigue. In these respects the building industry has changed very little, compared with before the war, whereas many other industries, such as motor engineering, have made remarkable progress. Suggestions as to where savings could be made in this field are included in the Report, but we realise that until the proportion of work carried out under factory conditions is substantially increased in comparison with site work, progress in this direction must necessarily be slow.

We have, nevertheless, stressed the potential value of a long term building programme in eliminating fluctuations in employment, and we believe that if this and the social aspects of the problem are fully realised the co-operation of labour will be assured.

We have also examined the question of recruitment and technical education and made some suggestions with regard to the extension of existing schemes.

(iii) As regards materials we have investigated in detail some of the principal building materials industries, and have come to the conclusion that substantial economies could be made both in general by more intimate co-operation between builders and producers of building materials, and in particular by improvements in the productive technique and distributive structure of these industries.

In the case of bricks, for instance, the industry suffers from very wide fluctuations in the demand for its products, and average savings up to probably 25 per cent could be made over a period of years by providing for constancy of demand and concentration of output. There is also in the case of many works an apparently wide margin between works costs and selling prices, the latter frequently being maintained by unofficial "rings" made possible by the small economic radii of delivery for most works except those in the Fletton area. Provision for greater continuity of demand would also enable brickworks to introduce a higher degree of mechanisation than is at present the case. Even in the big Fletton works, where the clay pits are mechanised, there is still a lot of handling of the bricks before and after firing, while in very few facing brickworks has any degree of mechanisation been introduced at all. Thus there is no doubt that there is considerable room for reduction in works

costs, which has been long delayed owing to price-maintenance, forced on the industry through the spasmodic nature of demand, having removed to a large extent the usual impetus towards technical efficiency. We have also given some attention to transport costs, size of bricks, competing materials, etc.

An investigation of the timber industry has shown that control of the prices of softwoods is substantially in the hands of the Government through the fixing by the Board of Trade of import quotas for Russian timber. The original reason for the limitation of Russian timber imports (which is not in the interests of the British building industry) was to enable Canada to obtain a bigger share of the British market. There seems to be no doubt, however, that a large part of the benefit of this limitation accrues to the Scandinavian exporting countries. Canadian timber, which only sells on price, has nevertheless both improved in quality and sawing, and has also been taken by this country in rapidly increasing quantities over the last three years.

The organisation of timber imports and distribution appears to be efficient, and there does not appear to be much room for cost reduction as far as the trading methods are concerned. There are, however, indications that rather substantial profits are made by the brokers, and that certain channels already exist by means of which purchase can be made considerably below the published prices.

The cement industry has been studied in the light of the recent agreement to prevent undercutting, which has been one of the principal troubles of the industry for a number of years. It should be noted, however, that the principal cement companies, the technical efficiency of which there is little reason to question have been able to pay substantial dividends right through the slump, and it is questionable how far the increase in prices following this agreement—an increase of about 20 per cent—can be justified. The agreement also makes no arrangements for the elimination of the less efficient plants, and, in fact, their continuation must tend to be guaranteed by the provision of quotas and the raising of minimum prices unless such quotas are purchased by other producers. On the technical side also it appears to us that standards have been insufficiently related to costs and that the very high quality cements now obtained through fine grinding and other technical improvements have been developed mainly for engineering purposes and are unnecessary for cement used in working-class housing.

10. We have examined the objects and functions of management, differentiated between the technical and social functions and attempted to show what both landlord and tenant may expect from management.

We have also attempted to discuss briefly the relative advantages and disadvantages of the Octavia Hill system and of the separation of management from rent collection.

Owing to the fact that we believe the regulations controlling the condition of working-class housing to be insufficiently widely known, we have reproduced a summary of the position made by the Ministry of Health.

In connection with upkeep and repair, we have put forward the case for introduction of a limited or licensed life for buildings, and in view of the striking lack of information about maintenance costs, we have suggested the pooling of experience gained by both public and private property managers.

11. We are strongly of the opinion that a central statistical organisation for the building industry is of vital importance, and we have indicated the nature and scope of existing statistical and information services. Suggestions are made as to the subjects which should be covered by such a central organisation.

The position of research has been largely affected by the fact, emphasised throughout the report, that the building industry has only recently shown any signs of changing from a basis of tradition to one of applied science.

We have examined briefly the relation between Government and industry contributions towards research in other industries and have shown that in the case of building research the amount raised by the industry is relatively small.

We have stressed the danger of research financed by or carried out mainly for proprietary material interests, and we have suggested that in view of the outlook of much of the personnel engaged in the building industry, greater attention might be devoted to the presentation of scientific results in a more easily digestible form than is at present the case.

We have also pointed out the need for an authorising body which would enable new systems of construction to be experimented with; and we have suggested that greater attention might be given to research from the point of view of users of buildings

12. In the case of local rates, we have made a brief survey of the existing position, which has convinced us that the incidence of rates in the depressed areas such as South Wales is so heavy that the economic provision of working-class housing to let at inclusive rents within the means of the lower-paid workers is impossible

We have, therefore, examined the possibility of de-rating working-class housing in such areas, and while we are convinced that the difficulties of such a system would be very great we think it worth while to draw attention to the idea, and, at any rate, point out the need for some special measures.

13. Finally, we have attempted to summarise and to give detailed examples of what we consider to be possible openings for cost reduction in building.

In the preparation of this Report we have drawn on material from a variety of sources, acknowledgment to the chief of which is made in the text, but as this is not always possible we wish to emphasise that any claims we might make would be more with regard to the angle of approach and the ground covered than with regard to originality. We would add, however, that our material is at the disposal of all who wish to use it.

P E P will welcome correspondence about the subject matter of this Report, which should be addressed to:

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I. STRUCTURE

THE NATIONAL ORGANISATION OF WORKING-CLASS HOUSING

1 For purposes of policy, and, therefore, of investigation, the problems of working-class housing in England and Wales fall into the following rough divisions

- (1) *Slum rehousing*, in which there are good prospects of large operations by Local Authorities under their clearance programmes, for this work a subsidy is provided and is necessary, though its rate may prove too generous
- (2) *Reconditioning*, including the abatement of overcrowding (in the property to be reconditioned) by specific new building; for this a Government scheme involving new legislation, probably on lines similar to those suggested in the Moyne Report, has been foreshadowed and is expected shortly.
- (3) *Agricultural and Rural Workers' Housing*, presenting the special problem of a very low rent-paying capacity. This requires a subsidy, which is provided for the reconditioning of old houses, but not for the building of new houses. The need, though serious, is comparatively limited.
- (4) *The main mass of existing houses*, presenting certain problems of rent-fixing and of management, for the greater part of these (over 4,000,000) tenancies and rents are fixed till 1938 by the Rent Restriction Act 1938 at not more than 40 per cent above pre-war rents.
- (5) *New Housing*. This may be roughly sub-divided into three classes, according to rentals for typical four-room houses, Class 1 has inclusive rents of over—and usually considerably over—12/6 per week, and includes houses for sale on the instalment system; Class 2 has inclusive rents of 10/- to 12/6, and Class 3 has inclusive rents of under 10/-. These figures are for the average in the provinces—corresponding London figures are about 25 per cent higher. Class 1 requires no subsidy, and it is expected by the Government that the need in this class will be satisfied by a combination of speculative builders and building societies, large numbers are being built, and there are signs that the demand is becoming saturated, especially at the higher rent levels. Classes 2 and 3 are acknowledged to present a very large unsatisfied demand; no subsidy is available, and the Government hold that for Class 2 no subsidy is needed, while they expect that the demand for Class 3 will be met in part by slum clearance, and other such activities, and in part by a filtering-up process, facilitated by the rent-restriction of existing houses.

The uncertain factor in the situation is the extent to which private enterprise will suffice to produce an adequate and immediate supply of new houses in Class 2. We have been forced to the conclusion that under existing price conditions, the response of private enterprise, organised as it is at present, will be inadequate. We have, accordingly, sought to evolve an improved form of organisation capable of realising the necessary economies in house construction, while remaining on a strictly commercial basis. We have outlined an organisation which we believe to be capable of meeting the situation, to which we have given the name "English Housing Company". It should be mentioned at the outset that this organisation would differ from the various forms of National Housing Corporation which have been put forward from time to time, in that the scale on which it would operate would depend entirely on its own success as a commercial venture and not on any monopoly element. We do not, in fact, preclude the existence of a number of separate organisations of similar structure, but as the principle proved its worth in individual cases, so would a national basis come nearer to achievement.

The proposed English Housing Company is essentially directed to the provision of new houses in Class 2. It does not concern itself with slum clearance, reconditioning, rural housing, old house property generally, or the speculative building of Class 1 houses. It is based on the contention that with appropriate large-scale operation an inclusive rent of 10/- is an immediate economic proposition

Class 8, with rents below 10/-, is not ruled out, but, at the present level of prices and costs, it does not seem possible to provide it under average circumstances without a subsidy

2 Building costs and money rates are lower to-day than in any other post-war year, but it is very doubtful if private enterprise, as at present constituted, can erect houses of the required standard to let at 10s per week on a sufficiently large scale, although such rents have been achieved in isolated examples on a small scale

According to the Ministry of Health Annual Report, the national average all-in cost of four-room (three-bedroom non-parlour) houses at the end of 1932 was £360. The National Housing and Town Planning Council estimated that this figure had fallen by the end of 1933 to £350, which is borne out by the Ministry's returns of average building costs in 1933-34. If interest be taken at 4 per cent, and sinking fund (on approximately a thirty years' amortisation basis) at 2 per cent, a £350 house requires a weekly charge of 8/1 for the service of capital alone. To this must be added the weekly cost of rates, normally from 2/6 to 3/- per week, and of repairs, management, etc., normally another 2/- to 2/6 per week, making an inclusive rent of at least 12/6, and perhaps as much as 14/- per week.¹

It is essential, therefore, if an average inclusive rent of 10/- for a four-room house is to be achieved without subsidy, that considerable further economies should be effected. No reliance can be placed on any reduction in the cost of rates, and, though there is scope for greater efficiency and economy in repairs and management, the possible saving on this account cannot be very great, nor can there be any assurance of further reductions in the rate of interest, while a lengthening of the amortisation period would normally be an unwise risk.

It is clear, therefore, that a further reduction of building costs is essential. But there is an almost complete absence of any organisation among, and co-ordination of policy between, building-owners (whether municipal or private enterprise), the building industry and the building materials industries, on which a cost-reducing drive could be based.

8 Faced with this position, and with the generally unsatisfactory situation regarding the provision of low-rented working-class houses, a number of authorities have, in recent months, put forward proposals for the national organisation of working-class house-building. Two such proposals were submitted to the Moyne Committee on Housing in the summer of 1933. The first, by Sir Raymond Unwin and others, envisaged the gradual taking over of responsibility for all housing work by local public utility organisations working under the superintendence of a National Housing Board. The second, by Mr Rees and Mr Nicholson, proposed the establishment of a single National Housing Corporation. Both proposals involved the guaranteeing by the State of the necessary issues of loan stock. More recently the National Housing Committee, under the chairmanship of Lord Amulree, have made proposals with regard to a National Housing Commission and have emphasised the necessity of national organisation on a large scale.

The Moyne Committee found, in regard to the first two of these proposals, that there was not a sufficiently strong case for the creation of a new organisation, the establishment of which would "finally drive private enterprise from the field and would deter some Local Authorities from the urgent task of slum clearance." It is important to note these reasons for the rejection of the proposals, since neither of them affects the proposals for an English Housing Company here put forward.

4 The present Government's housing policy may be divided into three parts: (1) a systematic speeding up of the slum clearance and rehousing activity, provided for by the Housing Act of 1930, (2) by the Housing (Financial Provisions) Act of 1933, the abolition of the remaining subsidies for the building of new houses, and the encouragement of private enterprise through the provision of cheap finance on the part of the building societies, assisted, if necessary, by the guaranteeing of part of their loans by the Local Authority, the latter supported by a Government guarantee of half of any possible losses, (3) by the Rent Restrictions (Amendment) Act of 1933, the prevention of any further decontrol in the lowest-rented class of existing houses till 1938, and consequent stabilisation of rents in a large mass (over 4,000,000) of working-class houses.

In their first objective, the Slum Clearance Campaign, the Government are meeting with a very large and increasing measure of successful response from Local Authorities, and there can be little doubt that their creation of a stable pool of old low-rented houses, under the third head, is a valuable foundation to any new housing policy. But the second objective, the stimulation of new building of low-rented houses by private enterprise has, as yet, given very disappointing results. It is with the object of improving the results in this sphere, within the general terms of the Government's policy, that the proposals here outlined are put forward. The proposals accept the Government's view that private enterprise ought to be able and ready to satisfy the need, and suggest the way in which private enterprise can be suitably organised on a scale adequate for the work to be done.

¹ See also under "Survey of Cost and Finance," below pages 51-56

5 The advantages of a large-scale organisation for erecting and owning working-class houses may be summarised as follows:

- (a) It would enable a planned building policy to be pursued, based on a careful estimate of requirements over, say, a ten-year period, and resulting in a steady load right through the industry, with the avoidance of the wide fluctuations in building activity characteristic of the last few years, and a consequent reduction in costs.
- (b) It would enable further considerable reductions in building costs to be made through large-scale purchase and standardisation, and efficient building technique
- (c) The knowledge that a sustained demand was guaranteed over a number of years would be an incentive for producers of building materials to re-organise. Such re-organisation, with the object of reduction in costs and improvement in technical efficiency, is urgently needed, for instance, in certain sections of the brick industry
- (d) The maintenance of a permanent upkeep staff would enable proper provision to be made for repairs and housing management
- (e) The general progress of slum clearance would be assisted by indirectly reducing the pressure on slum areas
- (f) Although labour relations in the building industry now compare favourably with those in many others, it would enable improvements to be made in this sphere because
 - (i) A large organisation would be able to negotiate more easily over such questions as the entry of juveniles, maximum output rates, introduction of new materials, etc., by guaranteeing continuity of work over a long period.
 - (ii) Labour is more likely to co-operate whole-heartedly in an effort to provide an adequate supply of houses under a national scheme than under the present disorganised and unregulated system of cut-throat competition and profit-snatching

While the potential advantages of building working-class houses on a national scale have always been clear, the method of attaining them has not, and it is for this reason that proposals for the organisation of housing on a national basis have not been as well received as might have been expected. As indicated above, there have been several such proposals, varying widely in their nature, and no intrinsic originality could therefore be claimed for those put forward in this Report. They have, however, been preceded by a careful study of the facts, and accompanied by as wide an investigation of the implications as possible, and have always been guided by the need for co-ordination of short-term practical steps with long-term ultimate aims

6 The following is a brief outline of the scope, powers, and operations of a typical organisation which, for purposes of convenience in reference, is called the English Housing Company (E.H.C.)

- (1) The E.H.C. would be formed by private enterprise, and in all essentials would be operated as an ordinary limited liability company.
- (2) The E.H.C. would only deal with working-class dwellings, mainly in suburban areas (see Para 1 above), and would not attempt rural workers' housing for the moment, because
 - (a) it constitutes a relatively unimportant proportion of the total demand, and is, therefore, not one of the main points to attack,
 - (b) it is very doubtful whether it is possible to erect, without assistance or subsidy, working-class dwellings to let at rents which can be paid by rural workers—probably not over 5/- per week
- (3) The E.H.C. would not erect houses itself but would employ a building company for the purpose. We believe that, in order to facilitate the large-scale purchase of materials, which we regard as an essential bargaining weapon in reducing materials costs and as an important method of promoting efficient production in the building materials industries, it would be desirable for the E.H.C. normally to employ the same building company rather than to put individual work out to tender. The structure and method of working of this building company to which we have given the name English Building Company (E.B.C.) is discussed below¹
- (4) The centralised purchase of certain main materials, ultimately, perhaps, of all materials, would be undertaken by the E.B.C., which would include bulk contract prices as prime cost items in the bills of quantity for sub-contracts
- (5) The large and steadily growing buying power of the E.B.C. would be used in negotiating with the manufacturers of building materials, with a view to reduction in the price of these materials and to promoting improved efficiency and technical integration based on maximum output and continuity of demand.

¹ See pages 22-23

The fundamental reason why there have been damaging price rings in the past is because the building materials industries have been strongly organised and the building and contracting industries have not. There has, also, been the further reason that demand has been spasmodic.

- (6) The structure of the building materials industries in many instances is such that the use of methods outlined in (5) would enable costs to be considerably reduced. In this connection it would be of the utmost importance for the E B C to keep in the closest possible touch with the technical and economic position in these industries which should be, but have hitherto not been, linked together through the market for their products. Not only is there no such linking at the present time, but the information available on any of these industries individually is very inadequate, and surveys of capacity, costs, markets, transport charges and technical improvements, etc., are urgently required.
- (7) The E B C would maintain a permanent technical and economic research staff to investigate the possibilities of reducing building costs by means of
 - (a) Alternatives to existing building materials,
 - (b) Standardisation of products,
 - (c) Improved site management and efficient utilisation of labour and materials

On a basis of estimates carefully worked out and given in another section of this report,¹ it is not anticipated that the E B C could, on the basis of existing conditions and costs, build standard A3 dwellings in suburban areas to let below 10/- per week inclusive, and in certain cases the cost might necessitate a higher rental. This figure has, in a few cases, already actually been achieved, so that, rather than claiming a complete innovation in costs, E H C would at first only be able to claim the advantage of achieving these costs on a larger scale than hitherto.

Only, however, a combination of the type of the E H C and the E B C could tackle the bigger problem of reducing costs of the building itself by tackling each main element, whether design, building assembly or constituent materials, with a view to a cumulative reduction in the cost of the whole, and this must be the main aim of these organisations. It is anticipated that a reduction of 20 per cent below the minimum figure based on existing conditions and costs should not be impossible. Alternatively, if the general level rises, as is unfortunately not impossible, E H C should be able to keep below it by a corresponding amount.

- (8) The E H C would own and administer land and working-class dwellings and would also be able to lease out land. Land thus acquired would be regarded as a mortgageable asset, and would also be subject to resale if the development of the estates raised its value by the creation of shopping sites, etc., and made such a policy profitable. Facilities would be provided for the acquisition of their dwellings by tenants over, say, a twenty-year period on payment of a small premium above the rent, such acquisition being subject to certain conditions as to the preservation of amenities. It is hoped that the structure of E H C would enable it to take a wider view of planning in its social aspects than has been possible on most speculative building estates.
- (9) The capital structure of the E H C would include equity shares, probably including a high proportion of participating preference, to bear the risks of initiation and fluctuation. The E H C would find the necessary finance for the purchase of land and erection of dwellings. It would work in close co-operation with building societies, insurance companies, etc. No Government or other guarantee of interest would form an essential part of the scheme, but every effort would be made to reduce to a minimum the interest rate on the fixed-interest capital by increasing the security, and for this reason a sinking fund of, probably, 2 per cent would be allowed for, which would give a total redemption of capital in about thirty years. It is anticipated that the average rate of interest would not exceed 4 per cent, and might, by means of a suitably designed issue, be reduced below this figure. Proposals have also been examined for insuring against loss of rents by default and "unlets," which, based on the existing position, appear to offer possibilities, although with the reduction in rents contemplated on the basis of really cheap building, the losses arising through defaulting tenants would probably be very small. A relatively short-term sinking fund would also make an important contribution to this end, because the property would be completely amortised before the risk of its being out of date becomes serious.

¹ See pages 63-65

- (10) The E H C. would not immediately start operating on a large scale throughout the country, but would begin in a limited number of areas. A single area would involve too great a concentration of risk, whereas, on the other hand, initial operation on too large a scale should be avoided because of the necessary gradual training of E H C and E B C personnel that would have to be undertaken, and gradual evolution of operating technique.

Houses would be erected to start with on sites in easy proximity to existing factory areas outside towns of expanding population, because of

- (a) provision of permanent and suitable tenants through co-operation with the factories, with resultant reduction in the burden of "unlets" and repairs,
 - (b) the general social reasons of reduction in pressure and overcrowding in urban areas, with resultant fall in slum property values, and reduction in transport costs for workers between their homes and their work.
- (11) It would be of the utmost importance for friendly relations with Local Authorities to be maintained, as the ultimate success of the E H C would depend to a large extent on this, especially with regard to local town-planning committees. Although the greater part of the country is as yet only under interim town-planning control, a considerable delay might be experienced in obtaining sanction from local committees. In this connection, however, the assistance of the Ministry might be sought.

7 Apart, however, from the immediate short-term policy of the E H C outlined in 6, it would be necessary to plan ahead a long-term policy, which should be regarded as the ultimate goal of the company, as its scope and area of operation increased. In this connection it should be observed that no monopoly in its line of activity is contemplated for the E H C, and if it proved a success, it is expected that other similar concerns would spring up in different areas. It is expected, however, that these would, broadly speaking, be organised on the same lines as the initial E H C, and ultimate co-operation would be aimed at.

It is suggested that as this long-term position begins to be approached it may be necessary and desirable for the E H C, or group of associated concerns, to acquire certain statutory powers, and to take on the status of a chartered corporation proposed by P E P Industries Group in dealing with other industries.

8 It should be essential for the E H C, in connection with both their short- and their long-term policy, to obtain the co-operation of the Ministry of Health and the Local Authorities in estimating both nationally and locally

- (a) the scale on which building of working-class houses should be conducted,
- (b) the minimum standards, including those of amenities, to which they should conform.

As regards (a), estimates arrived at during the last few years in different ways have varied between 170,000 and 250,000 per year for ten years for England and Wales. Probably 200,000 per year would not be in excess either of need or potential demand, provided at least 50,000 unfit dwellings are cleared per year and that a large majority of the new dwellings are built to let at rents at least as low as those contemplated by the E H C.

The information on which these estimates have been based is, however, very scanty, and a survey is urgently needed to determine accurately the scale of operations which should be aimed at as the scope of the E H C and possible similar concerns increases. A summary of the facts required and of information at present available is included in another section of this report.¹

As regards (b), the standards fall into three main categories

- (i) Of building (accommodation, structure, equipment),
- (ii) Of density, etc., of occupation;
- (iii) Of density, etc., of development.

The only bodies capable of establishing such standards are the Ministry of Health and the Department of Health for Scotland, acting with or through the Local Authorities throughout the country. In general, they have not yet done so. The practice has been to issue guidance through model by-laws, circulars, etc., to Local Authorities, and leave them to deal with their individual areas as they choose.

In the absence of a national minimum, we have made a careful examination of the present position regarding housing standards and reached certain general conclusions thereon. The following main elements have been taken into consideration. number of rooms, varying according to the

¹ See pages 42-50

number of occupants and their sub-division according to family groups, ages and sexes, structure, location, and equipment of the accommodation, including size, condition, and accessibility to work and recreation, and common services, amenities, etc., size of rooms, light and air, approach, sanitation, water, lighting, cooking, heating, washing, storage, repair, damp, management, etc.

It is essential that such work on standards should be steadily developed by the Ministry of Health, and that the E H C and other housing organisations should accept them as a vital part in the preparation of their building programmes

THE PRESENT ORGANISATION OF BUILDING

(1) Competitive Tender Systems

At present the whole of Public Authority building, and most non-speculative building for private enterprise, is carried out on the basis of open tender, generally under the R I B A 1981 form of contract, or one based upon this

In the case of a private building owner or company, plans are usually drawn up by an architect, with or without the aid of engineers or other specialist consultants, a bill of quantities is prepared by an outside quantity surveyor, and tenders are invited from a select list of firms. The work is normally let to the firm submitting the lowest tender. Any variations, additions and omissions are measured as the work proceeds, and agreed and settled either during the contract or at completion. Certain variations to this method are commonly met with. For example, in the North, particularly in Scotland, each trade is let as a direct and separate contract, sub-contracting being unusual, and a different system of measurement for quantities is adopted.

In the case of Public Authority work, the contract is usually advertised. Some authorities have lists of approved contractors, but this does not appear to be universal.

It appears that recently there has been a tendency in private enterprise work to give less and less time to the preparation of plans and quantities, with the result that the variations become a larger proportion of the total expenditure. There is no doubt that this tendency must lead ultimately to increased costs. This is mainly due to the fact that the building owner, who is naturally concerned at the capital charges arising during the planning and erection of the buildings, cannot be brought to realise that work has actually started, even though there is no evidence of activity on the site. Additional time spent at the beginning in careful consideration of the details of the work and planning its execution would almost invariably be repaid by savings in subsequent variation accounts.

It would appear that in the case of most large contracts the greater part of the work is sublet to specialist contractors, and many cases are known where the contractor retains little but the general supervision of the work, and perhaps the brickwork, for his own staff. This practice is increasing, although it must be noted that it is becoming more and more common for contractors to take a financial interest in a number of sub-contracting firms.

The objection to this system lies mainly in the fact that the interests of the two parties—the building owner and the contractor—which should be identical, are, in fact, diametrically opposed. It is inherent in the system that the contractor looks for all possible omissions and variations, and on cut-price work the profit on the contract may depend on claiming such variations. Further, it is not possible to arrange for any continuity of contract. There is no doubt that considerable advantages are obtained in cases where the contractor is thoroughly familiar with the details and class of work required by the building owner, and under the competitive tender system it is unlikely that one firm will be consistently at the bottom of the tender list. Moreover this scheme does not encourage the contractor to draw attention to possible omissions or methods of cost reduction when his profit depends largely on his ability to establish extras.

It is unfortunate that in discussing forms of contract it is necessary to lay stress on the possible advantages that may be taken of the building owner by the least scrupulous type of contractor. It is only in an attempt to bind such firms that a watertight form of contract needs to be evolved. We are fully aware that there are a large number of contracting firms operating in this country who automatically co-operate with the building owner, and whose good faith cannot be called in question. In work carried out under these conditions the community of interest which has been stressed throughout this report automatically arises. Unfortunately with open tender there is no guarantee, under present conditions of unregulated cut-throat competition, that the contracts will go to the firms to which one would wish them to go.

(2) Cost Plus System

During and after the War, largely owing to the necessity for speed and to the great fluctuations in wage rates and costs of materials, considerable use was made of a system of contract based on the prime cost of labour and materials, with an allowance of a fixed percentage on the prime cost for overheads, use of plant and profit. While this is still utilised in cases where building owner and contractor have the fullest knowledge of and confidence in each other, it was then, and is now, recognised as unsuitable for general adoption, as there was no upper limit to the contract figure, and it was to the advantage of all on the job to spread the work over as long a period as possible. Costs were in this way greatly increased. Under normal conditions it is impossible to find any arguments in favour of the system.

In a few cases a modified system was employed, in which the work was paid for on a similar prime cost basis, but the figure for overheads and profits was a fixed sum, so that the contractor had some incentive to turn out the work quickly. At the same time, however inefficient his organisation and however low the output per man, or whatever the wastage of material, the contractor was bound to be reimbursed for all expenditure, and could never, under ordinary circumstances, make an actual loss. This system was operated in the case of shipbuilding during the War, and is understood to have been a complete success, but the main disadvantage, namely, that there is no top limit of cost, makes it unsuitable for the building industry.

(3) Cost-fee-bonus System

In order to increase the incentive, a further modification was introduced, by which a bonus is paid, depending on any savings below an agreed top limit. This system is now used to some extent, and the arrangements by which it is operated are worth consideration. The architect prepares the usual drawings and specification, on which an independent quantity surveyor prepares a detailed bill of quantities priced on current rates at net prime cost. A fee is then fixed by negotiation between the building owner and the contractor to cover overheads, management and profit. This fee is a lump sum, and will vary according to the size and nature of the work. Further, it is agreed between the parties that any savings which may arise between the contractor's final cost and the final figure arrived at by the quantity surveyor will be divided between them, and the proportions for the purpose of this division are also the subject for negotiation. The work is thus not put out to competitive tender in the ordinary way, although work comprised in sub-contracts will probably be let in competition by the general contractor.

All time-sheets and invoices are checked by the quantity surveyor as the work proceeds. The advantages of the scheme are greatest in cases where there is a considerable number of contracts of a similar nature, but the danger lies in the fact that as the two parties continue to work together the possibilities of savings on which the bonus is paid must diminish. After a time, the bonus, therefore, tends to become a very small percentage of the total contract figure, and this incentive to economical work is correspondingly reduced. It should also be noted that the outlook of the foremen and executive officers of the contracting firm must be radically different from when they are working on the ordinary form of contract, and this makes it difficult for the same firm to work under both the ordinary contract and the cost-fee-bonus system at the same time. Thus, instead of being encouraged to look for extras and variations, they must work with a view to pointing out to both parties opportunities of making savings and reductions. The contractor is assured of being paid for all expenditure, and for all agreed extras, but only of his percentage for overheads up to the total of the original bill, and he can possibly make a loss on the total contract. In addition to variation of the bonus and of the proportion of the savings which are to go to the contractor, the fee paid for overheads and profit is, as stated above, varied and agreed for each contract, and it has been suggested to us that this fee might be put out to tender, although this would remove one of the main arguments for the system—namely, that it enables building owner and contractor to work together on a number of successive jobs.

The scheme offers five main advantages: (1) It is the direct opposite of the ordinary open tender system, and, properly operated, there can arise a distinct community of interest, particularly where a large and consistent volume of work is involved; (2) Where a series of similar contracts can be awarded to the same firm there is the possibility of strengthening the contractor's buying power by enabling him to make long-term arrangements for the supply of materials at reduced prices; (3) Joint experiment and research by both owner and contractor can be carried out more easily than in the case of the ordinary form of open tender; (4) Time is saved in the preparation of contracts and obtaining tenders, enabling an immediate start to be made with the work; (5) Where there is the possibility of a long series of contracts, risk of losing the connection is a very powerful incentive to the contractor to co-operate fully with the building owner.

The chief objection lies in the fact that as the bonus decreases, the scheme, in fact, approaches rather closely to the older cost-plus contract, and depends upon complete good faith between the two parties, although there is always the difference that the cost-fee-bonus system, in practice, averts the likelihood of any large increase in costs to the building owner owing to the check obtained by the independent quantity surveyor's original priced bill

(4) Direct Labour

A good deal of political discussion is heard at the present time on the subject of direct labour schemes. Extravagant claims are made as to their advantages and disadvantages, with the result that the real nature of the system is often overlooked. In essence, it may take two distinct forms (1) that in which the building owner undertakes to find and pay directly, not only his own executive officers, but also every unit of labour employed, (2) that in which the executive officers and some of the labour is employed directly, but the specialist work is sub-contracted on a basis of competitive tender. This second scheme is, in fact, identical in structure with that of the ordinary contracting organisation. This should lead to a direct saving of the contractor's profit, but not, of course, to the saving of management costs, which will arise in any case. Ordinary speculative housing is normally carried out on a system which lies between the above two forms. In this case it cannot be said to have led to extravagance.

The principal difficulty in its adoption for other than speculative building lies, however, in devising an incentive to keep costs down. In the case of the speculative builder the incentive is strong, as, if his costs go up, his profit on the sale of the houses is endangered, but in the case of the Local Authority, and even of the building owner who is not building to sell, the profit motive is less pressing. In many of the cases where direct labour has been proved to be extravagant, it is possible to show that the management has not been so skilled as that normally met with in the case of contract work. There is no stimulus, and, in many cases, no enthusiasm to reduce costs, as every one on the job knows that whatever work is done will be paid for.

(5) Proposed Method of Working of E.H.C. and E.B.C.

The basis of the attack on the excessive cost of housing adopted in this report is the achievement of an aggregation of small economies in every possible item. The most fruitful source of economy must undoubtedly lie in the development of a type of contract which will permit the purchase of materials on a large scale through long-term arrangements. This contract must also ensure the fullest possible co-operation between both parties—building owner and contractor—with a view to obtaining economic working. The risk of adopting a relationship between building owner and contractor such as is visualised in the conception of E.H.C. and E.B.C., is the possibility of serious internal inefficiency. At the worst, this structure might deteriorate into the most wasteful form of direct labour. It is, therefore, necessary to introduce internal interlocking checks at every possible point, and we propose the adoption of the following system.

E.H.C. would prepare the usual drawings and specification for each proposed scheme. A bill of quantities would then be prepared by an independent quantity surveyor, and would be priced in detail by him on a net prime cost competitive basis. The unpriced bill, together with the total figure arrived at by the quantity surveyor, would be passed to E.B.C., who, after obtaining competitive tenders for such parts of the work as they intended to sub-let, would agree or not to take on the work at that figure, plus an agreed sum for overheads and profit. This involves the consideration by each party separately of every detail of the cost, so providing a double check on possible extravagance. The detailed priced bills would then be compared for possible discrepancies, and a suitable contract drawn and completed, any necessary amendments being entered in the final priced bill. Variations would be dealt with in the usual way, the corrected bill forming a detailed schedule of prices, and the accounts agreed, and regular payments made.

E.B.C. (the contracting organisation) would let the usual sub-contracts on the basis of competitive tenders among selected firms. To start with, at any rate, E.B.C. would itself carry out the bricklaying, carpentry and joinery work, and would make long-term contracts for the supply of the materials required, as it is in these trades that the greatest advantage from bulk purchase is likely to arise. From time to time it might itself carry out one or other of the bills normally sub-let with a view to checking the general efficiency of the organisation and to making possible the carrying out of experimental work.

It would also be possible, from time to time, for E H C to put the whole original bill out to tender among general contractors, with a view to a further check on the efficiency of E B C, although it should be remembered that contractors are sometimes willing to make no profit, or even a loss, on their first job from a new client of importance; and although it is therefore clear that, by regularly employing different contractors E H C might secure lower contract figures than by always employing E B C, we regard the advantages of continuity of work, large-scale purchase of materials, and identification of interests, as of greater importance

The main incentive to efficiency, however, lies in the fact that E B C must make profits in order to continue, and that probably a proportion of the remuneration of the executive would be dependent on its profits. Part or all of the capital, or at any rate of the equity, of E B C would be held by E H C, so that if unexpectedly large profits were made as a result of exceptionally efficient management, the benefit would still go to the reduction in the cost of the houses

Where it was found that the spreading of sub-contracts led to such diminution in purchasing strength for the materials in question that costs were not sufficiently reduced, E B C would itself arrange for bulk purchases and would supply its sub-contractors direct, entering these items in the contracts in the ordinary way as p c items

This system offers adequate opportunities for long-term bulk contracts, and continuity of work, while at the same time a large part of the bills would be put out to tender. There is also an adequate profit motive, in the fruits of which the building owner shares

It presupposes the employment of a first-class executive with high remuneration, but, having regard to the extent of the operations, the overheads would not be unusually high

We have suggested this form of contract in the belief that it presents the best possible means of taking the fullest advantage of savings through large-scale purchases, and of preserving the highest degree of internal efficiency. The concept of E H C. is not, however, destroyed if this system should prove undesirable for other reasons, since it could always operate by letting out contracts in the normal way

We would also emphasise that, though we regard working-class housing as the main point of attack, and E H C. as the most promising form of organisation to deal with it, this problem is inseparable from the wider problems of the building industry and must be considered in conjunction with them

II. SUMMARY OF HOUSING LEGISLATION

INTRODUCTION

Legislation as it affects housing may be divided into two main classes

- (1) Regulations designed to ensure a minimum standard of safety, both sanitary and structural, and of amenities, of houses provided by private enterprise alone or under subsidy provisions. Typical examples are the Public Health Acts, the local building by-laws and the Town Planning Acts
- (2) Financial provision to ensure the building of certain classes of houses. Of these the Wheatley and Chamberlain Acts are examples

(1) BUILDING REGULATIONS

Although considerable attention is usually given to the financial provisions of housing legislation, the anomalous position of the actual "working rules" is usually overlooked

In the main, these regulations were originally drawn up in terms of the then current building practice, with a view to making them easily understood by men with no more than a traditional knowledge of building. Construction is specified not according to minimum requirements of strength, but by the materials to be used, and as a result the introduction of new systems unknown at the time the rules were drafted has been greatly hampered. That this difficulty has been realised is shown by the alteration in the basis of certain recent regulations, notably the "Code of practice" for steel frame buildings under the London Building Act, where practically any system of wall panel construction may be used, provided that it fulfils certain minimum requirements of strength and watertightness. Similarly, in the London Building Act 1930 the crushing strength of bricks, and the bond strength of mortars, are specified for the first time, and allowances made for decrease in the quantity of material used where it is of high minimum strength.

There are, however, still many anomalies, some examples of which may be quoted. The reasons for regulating the construction of walls are to ensure (1) stability, (2) fireproofness, (3) watertightness, and (4) (only recently) adequate thermal insulation. In most by-laws, walls are, in fact, however, required solely to be of given thickness, and to be constructed of hard and fireproof materials. Neither is the strength of the resultant wall considered nor is it possible legally to utilise alternative materials of higher strength unless they are of equal thickness.

As a further example, bricks are specified to be "well-burnt," because at one time fired clay bricks were the only variety available. There are cases where Local Authorities have created much difficulty when the use of concrete bricks of equal or higher strength was proposed. An instance has even been brought to our notice where the surveyor was doubtful about passing sand-lime bricks because they were not "burnt." Actually they are the only brick having a British Standard Specification for quality, and the same surveyor has always passed clay bricks of both less durability and lower strength.

Fire Hazard

As a further example, one reason for casing steelwork is to insulate it from the heat of a fire. It is laid down in certain sets of regulations that the casing, for certain purposes, may be a 2-inch thickness of Portland Cement concrete. The thermal insulation value of concrete, however, is not high, and it will not stand quenching when hot. It is possible to make a cheaper casing three-quarters of an inch thick of about twice the thermal insulation value, which will stand quenching, but this cannot be used in practice simply because the law lays down a thickness and not a thermal insulation figure.

Sprinkler installations are required in all buildings in certain areas exceeding a certain cubic capacity, without adequate regard to the use to which the buildings are put, and consequently to the real fire hazard. This is in many cases an unnecessary burden on costs, even if the value of a sprinkler installation in the majority of buildings is accepted.

The whole position of the regulations designed for the purpose of reducing fire hazard is an example of the false basis referred to above, and of the general misunderstanding of the problem

which was current at the time when the Acts were first framed. In many cases the requirements in this respect are at variance with those in force in America. We do not wish to suggest that either set of rules are wholly correct, or even that one is better than the other, but only that both cannot be right. Following on a conference between the Building Research Board and the Fire Offices Committee in 1932, steps are being taken to set up a proper fire-testing station in connection with the Building Research Station, and we regard this as of vital importance in the present struggle to obtain both better and more economic building. For some years the Fire Offices Committee has maintained a testing station at Manchester, where tests on building units such as doors, reinforced glass, sprinkler installations and so on are carried out, the results being published in the well-known "Red Books." The present proposal is, however, to extend research to full-scale sections of constructional work such as would occur in practice. It is to be hoped that further delay in commencing work on the station will not arise. The research problem is a fundamental one of enquiry into the behaviour of the standard building materials under fire conditions, and for this reason it is essential that adequate public funds should be made available. If the Station is starved financially, it is inevitable that the bulk of the work done will be in connection with proprietary materials, for the testing of which private concerns are willing to pay, and the result can only be to increase the complexity of building by the multiplication of proprietary products at the expense of unbranded materials. It is essential that the basic problem—that of more rational building at lower cost—should not be obscured.

Extraordinary variations in practice exist in connection with the fire-proofing of structures divided up into self-contained flats. It is quite common to require the underside of plastered ceilings supported on wood joists to be covered with $\frac{1}{4}$ in. asbestos cement sheets. The thermal insulation value of such sheets is far less than that of the plaster, and no care seems to be taken to see that the original plaster is retained in every case. The sheets will crack and fall away as soon as heated, although the plaster will not normally fall until the timber above is ignited. The staircases are very commonly required to be boxed in with similar sheets, and this may have some value in keeping them free from smoke, but other authorities require them to be boxed in with proper plastered partitions, or with two inches of hard wood. Similarly, many authorities require existing panelled softwood doors to be covered with asbestos cement sheets, although the real value of this does not seem to have been ascertained by scientific test. We have been assured, although it must be admitted that it is difficult to believe this example, that in one case a Local Authority permitted the floors of a house, which was being subdivided, to be fireproofed by laying $\frac{1}{4}$ in. parquet above the existing floor, provided that the parquet was of teak, and did not require the placing of any other material below or between the joists. Many authorities require the floor to be pugged although there is no recognised standard of material or method of pugging.

Similarly, there is no national rule as to when fireproofing is to be attempted and when not. In one case, just outside the Metropolitan area, a large house was to be divided up into one-room flats. If they were described as flats, and the tenants were to do their own cooking, then the Local Authority required all ceilings to be covered by asbestos cement sheets, and certain fire escapes provided. If they were to be described as bed and breakfast rooms—even if gas rings were provided so that the tenants could cook, albeit in some discomfort—and if a room was set aside, even in the basement, and described as a common room or dining room, although the tenants could not be forced to use it, then no precautions could be insisted upon. In both cases the risk was identical and the number of persons accommodated the same. It is not difficult to see what lettering was eventually put on the plans deposited.

We are strongly of the opinion that some way must be found to make the introduction of new materials, when properly tested, both easier and quicker. Apart from the effect on building costs, there is no doubt that the difficulty in effecting the adoption of new methods and materials has acted as a serious deterrent from directing the full drive of invention and research towards the improvement of building technique. This is relatively in a far more backward position than, say, electrical, chemical or motor engineering technique. These industries are not of greater importance, and yet each is responsible, for instance, for a far larger annual number of patents.

With the improvement in knowledge and technique with regard to testing, and the growth in the number of organisations equipped and qualified to conduct tests, the need seems to be for a thorough revision, simplification and re-definition of requirements affecting public safety or designed for the protection of building occupants. An approving authority should be appointed to which new materials or methods would be submitted. More detailed proposals regarding this are made below. If the authority reported that the materials or system conformed with these general requirements, then their use should be made immediately possible in all suitable cases throughout the country.

Regulations Affecting Safety and Amenities of Dwellings

Requirements in connection with the more important needs of sanitation, public safety and convenience are laid down in a series of four Public Health Acts commencing in 1875. These cover such points as the provision of sewers and connections to them, the paving of courtyards, the prohibition of actions and erections likely to cause "nuisance" or be dangerous mainly on sanitary grounds, and to a certain extent the general provision of sanitary accommodation. The whole of each Act is not in force universally throughout the country, and it is always necessary to enquire in each area whether certain sections have been adopted. The Acts are, of course, well known, and less confusion arises from the lack of uniformity in adoption than might be supposed. Nevertheless, it is indefensible that there should be differences in practice in areas of equal density of population. It is to be hoped that Parliamentary time will be found for a Consolidating Act in three sections, for urban, semi-urban and rural districts, and that this Act will be applied equally in every district of the same class.

The detailed construction of buildings is covered by a great variety of Acts, by-laws, and regulations with only general similarity of content. In London and certain large or ancient towns there are usually Local Acts of Parliament which may often be more rigid than the regulations contained in by-laws in force elsewhere.

General legislation in connection with Public Health seems to commence in 1848. Under the Local Government Act 1858 (much of which was re-enacted by the Public Health Act of 1875) local authorities were empowered to draw up and administer by-laws for certain purposes, and these were required to be confirmed by the Secretary of State. In 1871, under the Local Government Board Act, the confirming authority was transferred to the Local Government Board. In 1877 the Local Government Board issued the first of a series of models as a guide to local authorities in the drawing up of building by-laws, which were altered and amended from time to time as seemed necessary. The powers of urban councils and certain rural councils were extended by the Public Health Acts Amendment Act in 1890.

By 1906 it appears that the Local Government Board felt that certain local authorities had in force either antiquated or unduly rigid by-laws, for a circular letter was sent to rural authorities suggesting that where they had by-laws in force of a more exacting type than the then current rural model, they should consider the possibility of amendment. This was repeated again in 1912, when a similar but more strongly-worded letter was sent to both rural and urban authorities. The model by-laws, which were, by that time, and have since always been issued in three types, namely urban, rural and intermediate, were at the same time thoroughly overhauled and brought up-to-date. Since then, comparatively regular and frequent amendments have been made, but the pre-war edition is still the foundation for present issues.

In 1914 the President of the Local Government Board set up a Departmental Committee "to consider the control at present exercised in England and Wales over the erection of buildings and the construction of streets by means of by-laws and local regulations, and their effect upon building and development, and to make recommendations." The Committee did not report until November 1918, and before that the Board had already issued a memorandum which defined their policy in the following terms: "It may be assumed that the Board definitely desire the repeal of all series of by-laws made before 1900, and at least the examination and amendment of all those made between 1900 and 1912. Even by-laws made since 1912 may in some cases usefully be reconsidered and relaxed."

This is also a fair summary of the relevant recommendations of the Departmental Committee's report.

The confirming authority for by-laws was transferred from the Local Government Board in 1919 to the newly-created Minister of Health, who embodied most of the recommendations of the Departmental Committee in the Housing Acts of 1923 and 1925.

Since then constant pressure has been applied by the Minister to local authorities to ensure that the by-laws are regularly amended to conform in the main with the model by-laws current at the time. The Minister appears, however, to have only limited powers of insisting on amendments.

Attention was directed in 1930 to those authorities whose by-laws had not been amended since 1923, and the majority of these have since been dealt with. The model by-laws were again amended and reprinted in 1930 and 1933. There are still a few rural districts without by-laws.

New Streets

Somewhat similar by-laws are commonly in force in most districts in connection with the lay-out and structure of new streets.

Amenity and Town Planning Regulations

Building Lines

To prevent building in front of the general line of existing buildings on either side of the proposed work, local authorities in urban and some rural districts have certain powers, based not on by-laws but normally on the Public Health (Buildings in Streets) Act 1888 and the Roads Improvements Act 1925. The building line is determined solely by the position of the main wall of the buildings on either side and cannot be prescribed by the local authority, although appeals in connection with disputes can be heard at Quarter Sessions. In certain cases streets may have been permitted to be laid out of less than the proper width on condition that the buildings are set back to a prescribed distance under authority of the Housing Act 1925.

Improvement Lines

When a street repairable by the Local Authority or a road repairable by the County Council requires widening, the responsible authority may lay down an improvement line in front of which new building may not take place, and to which the street will ultimately be widened. Matters disputed may be referred to Quarter Sessions. This power derives from the Public Health Act 1925, although some authorities have special local acts of similar effect.

Structure of Buildings

The control of the structure of buildings is carried out by the Local Authorities acting in conjunction with their surveyor and other technical officers. Their powers are limited and rigidly defined, but they may, and do, vary from place to place. There may also be Local Acts of Parliament, the terms of which may vary widely and are generally more exacting than those based on the model by-laws.

Where by-laws are in force, they always require that a person intending to erect a building within the scope of the by-laws shall submit plans of the proposed work, and the Local Authority must approve or disapprove the plans within one month after the date of submission.¹ Work may commence at the risk of the building owner after submission of the plans, but before approval. The Local Authority need not, apparently, give any reason for the disapproval of plans, but certain courses are open to the building owner to enforce approval, provided that the proposed work complies with the by-laws. These are, however, cumbersome and costly, and take considerable time. It is now possible, under certain circumstances, to refer matters in dispute to the Minister for decision, provided that both parties agree to the terms of reference.

Local Authorities have powers to enforce compliance with the by-laws, and generally, through their officers, to inspect both new and existing buildings. The passing of plans is generally carried out by a sub-committee of the Authority which need not be and, in fact, generally is not composed even mainly of members having a technical knowledge of building. In practice, reliance is largely placed upon the surveyor acting as technical adviser, and the task of interpreting the many regulations is almost wholly in his hands.

Water Supply

The law with regard to the provision of water supplies to dwelling houses is somewhat involved. The position is mainly covered by the Public Health (Water) Act 1878. Under this Act the Local Authorities cannot refuse to approve the plans of a house which it is proposed to build, despite the fact that no suitable water supply is available, but it becomes an offence in rural areas to let or occupy a new house not supplied with adequate water. The Act covers all rural areas and a few urban areas. Certain other urban areas have special local Acts of similar effect. Apart from these provisions there is no need to provide a water supply in urban areas for new houses. Under the Public Health Act 1875, however, in every urban and rural area the Local Authority can require any *existing* house to be provided with a water supply so long as the cost of so doing does not exceed a certain sum. The Public Health Acts also lay down regulations for the prevention of contamination of wells and tanks. The detailed regulations in connection with water supply, the nature of fittings permitted, methods of payment, and similar matters, are, however, not generally co-ordinated.

Each company normally operates under a private act, the terms of which now usually follow those in the Waterworks Clauses Acts, but most of the water undertakings in the country have special regulations as to water fittings that may be used in their area. The majority will now take fittings specified either by the Ministry of Health or the Joint Standing Committee on Waterworks Regulations,

¹ Submission of plans for approval under By-Laws is deemed to be a submission for approval under any local Town Planning Scheme that may be in operation.

but there are still a surprising number who insist on special designs. The effect of this on any real attempt at standardisation is disastrous, and no satisfactory reason for the variations can be shown.

Effect of Varying Regulations on Costs

The possible variations in local conditions are limited to variations in pressure and hardness or quality of water. Since brass fittings are permitted in every area there seems to be no district in which the action of the water on this metal is to be feared, and the question of varying pressure could be dealt with by two types only—one for low and one for high pressures. In addition, it is reasonable that the companies should have the right to insist on testing and stamping apparatus and making a charge for this, but to insist on special designs is indefensible. The effect of the present position on prices may be illustrated by considering water-waste preventors. A particular type of fair average quality accepted by most authorities is listed at 19/-. To alter it to pass particular water authorities necessitates varying additional costs up to 27/- for one area. In the case of ball valves a good type at 50/- per dozen for the three-eighths of an inch size may be increased up to 86/- for some particular areas.

Delay in Introducing new Materials

Another perhaps more apposite example is that of the introduction of certain lead alloys. Lead pipes used for conveying water are almost everywhere required to be of a certain weight per foot with a view to ensuring adequate strengths. So far as is known, no authority lays down any conditions as to the nature of the crystalline structure of the lead, although this has considerable effects on the strength.

Some few years ago, as a result of research partly supported by Government contributions, it was proved that by using certain lead alloys in place of ordinary soft lead a material of 50 per cent greater strength could be produced, which had other improved properties and was peculiarly resistant to crystallisation under strain. As a result, considerably stronger pipes could be made or, for the same strength, the weight reduced. It appears that there was at first considerable reluctance on the part of the lead makers to take this up, although there are now supplies available. Further, despite the definitely improved character of the material, scarcely any water companies, outside Rochdale and Manchester, will yet permit the use of lighter-weight piping made of this alloy. As an interesting commentary it has been for some time the standard and only specification for Admiralty lead-sheathed cables, despite the traditionally conservative practice of their buying department.

The opportunity for the introduction of improved methods of building by private individuals must, indeed, be small if the results of research carried out under Government auspices cannot be applied.

Habitation Certificates

In certain areas, usually those having exceptionally old-fashioned by-laws or local building Acts, it is necessary to obtain a certificate from the Local Authority that the building is fit for human habitation before it may be occupied. The requirement is now usually deleted as and when the by-laws are amended. While the system has some advantages in connection with the arrangements for mortgages—amounting in fact to the mortgagor's survey being carried out at public expense in certain cases—the fact that the Minister does not now allow such a regulation shows that it is in the main an irritating anomaly.

Waiver of By-laws or Local Acts

Certain very limited powers of waiver of by-laws were conferred under the Housing Act 1925. Where, in any district, work under the Housing Acts has involved departure from the by-laws, housing not carried out under these Acts may claim similar relaxation, but only from the same sections of the same by-laws or Acts and to the same extent.

In districts covered by planning schemes there may also be some relaxation of the by-laws as to new streets.

Inter-relation of By-laws and Public Health Acts

The inter-relation of the by-laws with the Public Health Acts is not always either clear or logical. For instance, it has been held that what is known as *combined drainage* may be prohibited under the Public Health Act of 1875, but this is never prohibited by the model by-laws. The need to provide a soil drain is laid down in the Public Health Act of 1875, but the nature of the work is more fully defined in the by-laws.

Anomalous and unco-ordinated Legislation

Shop-blinds

In addition, there are a variety of Acts which affect building in certain less important aspects, the existence of which is almost unknown among architects, and of which no complete list exists. For example, it appears from a recent prosecution, quoted in the "Hardware Trade Journal" of November 30th, 1933, that the height of shop blinds is regulated, at any rate in those districts which have no special by-law on the subject, to the minimum height of 8 feet laid down in the Town Police Clauses Act, 1847.

Garages

The position with regard to garages attached to or adjacent to dwelling houses varies widely in different districts. Until recently there were few by-laws regulating the construction of such garages. Certain authorities would allow direct access from the garage to the house without more than an ordinary deal-panelled door. Some authorities required fire-resisting ceilings to the garage where there were habitable rooms above, with the usual variations as to what constituted a fire-resisting ceiling. Others made no special regulations. In some areas use was made of regulations issued under the Locomotives on Highways Act. It appears, however, that more recently, where garages are constructed either within, or adjoining part of the dwelling house, their construction is covered by Statutory Rules and Orders 1929, No. 925, issued in connection with the Petroleum Consolidation Act 1928. The position is, of course, that where a car has petrol in the tank the garage becomes a storage place within the meaning of the Act. This will not, however, necessarily supersede the by-laws where both happen to be in force.

Pavement Lights

The regulations in connection with the construction of pavement lights, vaults and coal plates are a good example of the peculiar variations of practice in different districts. They are based on several different Acts and by-laws, and even in London there is great variation in practice as between one Borough and another. Each Borough tends to base the maximum projection of the pavement lights on the common width of pavement within the Borough. In old districts with narrow pavements, naturally only a small projection is permitted, and this becomes the limit even where the pavement happens to be unusually wide. There seems to be no reason why the regulation should not be worded so as to restrict the projection to a proportion of the width of the pavement measured from curb to building line, with an over-riding maximum. This could then be applied equally throughout the country. The delays arising in obtaining permission to place an emergency exit discharging through a pavement light in certain districts are well known.

Coal Plates

The reason for limiting the diameter of coal plates is solely to prevent foot passengers falling into the vault in the event of the plate breaking or being removed. Since the variations in size of foot passengers must be the same in every district, there can be no rational reason for district variations in the diameter permitted. A very useful piece of statutory standardisation could easily be carried out here.

Position of the Architect

It has been held in the courts that an architect is supposed to have a sound but general knowledge of all the regulations, both local and general, governing building. Under present conditions most men in practice are acquainted with the better-known Acts, but few have any knowledge of the existence of many lesser known regulations or regulations in force outside their own immediate neighbourhood. The confusion, moreover, is not improved by accidents in drafting which have arisen in connection with by-laws. For instance, in certain areas authorities have regulations purporting to be made under powers given under certain Acts where, in fact, such powers do not cover the regulations made. In other words, the particular regulations as published can have no legal effect.

Sewage Systems

Apart from the variations as between one set of by-laws and another, there are variations of interpretation of the same Acts, or similar clauses in different by-laws. For example, one rural authority required all septic tanks to be made in such a way that the second, or aeration, chamber should be permanently flooded. Even if the action of this chamber is disputable, and it would seem to be based on well-established natural phenomena, it is at variance with the requirements of most other authorities, where these phenomena must be similar. In all London boroughs the regulations as to drainage are based on the same Acts, but it is well known that while some officers will accept the so-called one-pipe drainage and certain proprietary anti-syphonage traps, others will not.

The position in connection with soil and surface water sewers is particularly variable. In some areas all water must be taken into the foul sewer; in others, separation is insisted upon. Uniform practice cannot, of course, ever be insisted upon in every case, as the problem is dependent upon the economic need for utilisation of old or inadequate sewers, and the efficiency of the treatment plant and outfall works generally. One system or the other must, however, more nearly approach the ideal, and greater pressure might well be brought to bear on newly-developing areas to ensure uniformity. The particular point is, however, further and unnecessarily complicated by variations from area to area as to the provision of interceptors. Generally, most areas require interceptors on all soil drains. Exceptions are, however, known to both cases, and one authority at least is understood to insist on the omission of the interceptor on soil connections, so allowing the sewer to be ventilated at each and every house. Here at least complete uniformity is reasonable, and the problem is capable of scientific investigation at no great expense. An interceptor must necessarily be either desirable or undesirable, and it is not a matter which can reasonably be left to the discretion of a Local Authority acting without adequate data.

Cost of Introducing New Materials

An interesting case has recently been brought to our notice of a company of standing which commenced to market certain fittings made of a new material in connection with sanitary engineering work. These were immediately accepted by a few authorities, but in the majority of cases it proved necessary for the firm to send a representative to interview the responsible local official before builders were permitted to use the fittings. The actual cost to the company in salaries, travelling and lodging expenses is stated to have exceeded £8,000 already. Apart from this, the fact that introduction has been so slow must necessarily have increased the costs of manufacture very seriously. In certain cases local authorities enquired if the material would stand up to tests which would certainly have destroyed the more orthodox materials in regular local use.

Another case is quoted where a local authority refused to accept for their own work steel to the current British Standard Specification applicable to the particular class of material required. It may be argued, of course, that the standard is not sufficiently exacting and that better material is desirable, but it is difficult to see, if this is the case, why their action should have been reported as being so exceptional as to be practically unique. Few, if any, authorities have the necessary testing and research facilities to permit of such action being taken on wholly scientific grounds, and if such action is to become common then the whole value of standardisation is likely to be lost.

Need for a Consolidating Act

It will be seen from the above examples which have come to our knowledge, that there is urgent need for a complete survey of building regulations with a view to the drafting of a Consolidating Act. The present confusion must make it exceedingly difficult for, and cause endless delay to, any organisation intended to provide low-rented houses on a national scale. The preparation of a new Consolidating Act must take some years before it can ever be submitted to Parliament, and the possibility of other and immediate action should be considered.

The building industry is changing from one based upon tradition to one based upon the application of scientific research, and the rate of introduction of new materials and systems of construction is constantly increasing, and will continue to increase. In order to make the provision of working-class houses at low rents possible, immediate use must be made of each approved new development. In the past it has been almost impossible for the individual or company interested in the introduction of new materials and systems, not envisaged at the time of the drafting of the by-laws, to obtain permission to give them a practical trial. Even when this has been done, considerable delay must occur before any Local Authority can obtain the necessary powers to permit their regular adoption. In the case of the by-laws, it is, generally, first necessary to obtain an alteration of the model series which, in itself, may take some years, and then to wait until each local area amends its by-laws, which in many cases will take a further ten years or more. Even where it is a case of varying the interpretation of existing by-laws the position is both unsatisfactory and slow. Few, if any, Local Authorities have either the equipment or the knowledge to carry out a full scientific investigation, and the decision must rest upon the possibly prejudiced opinion of a single officer, whose time is already fully occupied with normal departmental business. When the present system was first set up nearly eighty years ago, in an age when building was still a traditional art, the position was reasonable, as such decisions depended upon the results of experience. Nowadays the development of the science of building is sufficiently advanced to enable such decisions to be made on the results of strictly scientific investigation, and except in quite extraordinary cases it is impossible to show logical reasons why a practice permitted in one area should not be permitted in other areas equally densely populated.

Possible Immediate Steps

Pending a Consolidating Act covering the whole of building law, certain possible methods of overcoming the worst inconsistencies require consideration. Apart from piecemeal alteration of the detail of existing regulations which, as has been stated, may take many years before general adoption, there appear to be two main lines of approach.

(a) To exempt dwelling houses of, say, 10/- per week rent and under from all or certain of the harsher requirements, or to pass a Building Act applicable throughout the country for this class of work. It is admitted that there are very grave objections to this which probably far outweigh any advantages.

- (i) It is bound to give rise to bitter criticism to the effect that the Government is lowering working-class standards of housing and, in fact, that anything is good enough for the worker,
- (ii) The provision of two sets of rules can only increase the already serious confusion, and would, in practice, be difficult to administer,
- (iii) The poorer the class of tenant and the smaller the property the greater the risk of overcrowding, and therefore the more the need for strict regulation. Such work is often built at cut rates so that there is already a natural tendency for all concerned to provide only the minimum that will satisfy the surveyor's interpretation of the law,
- (iv) The purpose of such procedure is to eliminate waste and increase reasonable standardization. This can only occur if the building trade is considered as a whole. Housing is inevitably an integral part of the industry, and will never be capable of separation.

Statutory Authority on Building Technique

(b) We are therefore inclined to favour the setting up of a Statutory Authority with definite powers, operated in close co-operation with the Building Research Station.

The Authority would require an independent Chairman, for whom an appointing authority would have to be decided upon, and would consist of a legal expert and a building expert seconded from the Ministry of Health, two technical men seconded from the Building Research Station, one member nominated by the representative bodies of the Architects, Surveyors, Building Trade Employers, Building Trade Employees, and a representative from the British Medical Association, the British Standards Institution and the Office of Works.

Since it is intended that the Authority should meet regularly, remuneration would be essential on a full-time basis for the Chairman, the Ministry of Health and the Building Research Station members, and part-time for the remainder. Power to co-opt additional members would probably be necessary, with a proviso to exclude trade interests, and certain general powers to call evidence. A full-time Secretary, having knowledge of recent building research work and of the administration of building law, and an adequate staff, would also be needed.

The Authority would be the final deciding body as to what should and should not be permitted in the structure of buildings, roads and sewers throughout the country, and would become the co-ordinating and directing body controlling research into building technique. It would ultimately be responsible for drafting the necessary consolidated building regulations. In the meantime application could be made to the Authority by interested bodies for permission to utilise new materials and systems of construction. Where these differed widely from current practice, or if for other reasons it appeared advisable, they would direct the appropriate Government research station to carry out investigations and to prepare confidential reports. Where proprietary rights were claimed by the persons submitting the application, the costs would be charged to the applicants, otherwise the costs would be borne in a similar manner to the costs of the general research now carried on at the Building Research Station.

On the Committee being satisfied that any proposed system or material was in fact suitable for adoption generally or in certain types of area (rural, urban or intermediate), it would issue regulations to that effect, which would be binding on all authorities concerned.

Questions of interpretation of existing and future regulations could be referred for decision to the Committee in the form of an agreed statement, in the same way that certain questions may now be referred to the Minister of Health. The regulations of the Committee would be circulated to the Press and to the local authorities, and would be available for inspection, together with the annual report of the Committee, at the offices of the Local Authorities.

Relation to Consumer Research

The Authority would have the power to recommend increased grants for research if an increase proved necessary, and would also have the right itself to suggest lines of enquiry and alterations to present laws.

In the main, such research would be carried out in the interest of the consumer and not of the materials manufacturer. The recent stringency in grants for research has inevitably tended to increase the proportion of work done for, and at the expense of, the proprietary interests. The present position in connection with paint research is, perhaps, an example of the need for such reorientation. So far as the building trade (an important consumer) is concerned, the work done (very little of which is published) is of no great value, and there is urgent need for some public body to undertake and publish the results of extensive research on the durability of paint films on various materials. The great variety in price of the vast number of proprietary brands on the market is sufficient evidence of the variation in the nature of the contents of these brands for which very similar claims are made. The true expectation of durability and the factors governing it are not even yet known for the types subject to British Standard Specification.

At the moment it is practically impossible to erect any full-scale experimental buildings without the risk of transgressing the existing law, it is of the utmost importance that where it appears desirable, the Authority should permit the erection of a single block of buildings based upon any novel system of construction, or containing any unusual and previously untried fittings or equipment, notwithstanding that they did not comply with existing legal requirements, on the condition that the work should be carried on in the light of an experiment on behalf of the Authority, and under such conditions as they saw fit to lay down. The officers of the Authority, or of the Government research stations, would have the right of inspecting the work during erection and after completion, and full rights to report publicly or confidentially to the Authority the results of their investigations. If, in their opinion, the experiment showed that the scheme was desirable, then the Authority would grant permission for its general adoption.

The advantages of the scheme are:

- (1) Increased uniformity in building regulations and in their interpretation, without increased centralisation of administration,
- (2) Increased recognition of the necessity of scientific control of building regulations,
- (3) Removal of the present delay in obtaining revision of by-laws;
- (4) Possibility of appeal against arbitrary decisions of local officials who have no means for the scientific investigation of problems raised;
- (5) The possibility of obtaining full-scale experiments in certain types of construction.

While we welcome the setting up of the Committee under the Chairmanship of Sir George Humphreys, K.B.E., M.Instr.C.E., as evidence that the need for some such Authority as we have outlined is recognised, we do not feel that either the powers of the Committee or its terms of reference are such as will enable it to deal with the problem which we see. The problem is not one limited in any way to the building of one type of structure, and we are convinced that it is wholly wrong to attempt to deal with single manifestations of difficulties common to the whole industry.

We are further satisfied that the work cannot be done within the existing framework of the Ministry of Health even should this be suitably extended. The normal activities of the Ministry are concerned with the administration of the existing law, and it is natural to suppose that the difficulties of alteration will appear exaggerated. The natural attitude of such a department after years of routine work when confronted with a new system of construction must be to consider to what extent it runs counter to existing law, and not to what extent it seems a desirable development.

(2) FINANCIAL AND SUBSIDY LEGISLATION

The powers of Local Authorities entitling them to build, and control the construction of houses, to acquire land, etc., have been provided gradually by a long series of Public Health and other Acts going back to the nineteenth century. The early Acts were, however, very limited in scope, that in 1851 being limited to the provision of lodging houses, and they were generally largely inoperative. The basic power of building and owning working-class dwellings dates effectively from the Housing, etc., Act 1890, which was renewed in 1894, 1900, 1908 and 1909, and reinforced by the Small Dwellings Acquisition Acts (1899-1928). This, however, only permitted the Local Authorities to make advances to facilitate the acquisition of small property by tenants.

A definite shortage of working-class houses arose in 1910, and owing to the cessation of building during the War the position quickly became serious

Up to 1910, 99 per cent of all housing was provided by private enterprise, and 95 per cent from 1910-1914. Since the War the permanent powers of Local Authorities have been increased and amended by the Housing (Additional Powers) Act 1919, the Housing Act 1921, the Housing Act 1925 (which effected a general consolidation), the Housing Act 1930 and other Local Government, Public Health and Town Planning legislation. Less extensive powers have been given by the same and other Acts to Government Departments, Public Utility Societies and other bodies.

The temporary provisions giving Government assistance in one form or another are entirely post-war, and fall into three main divisions:

- (1) General Housing—1919, 1923, 1924, 1933 Acts,
- (2) Slum Clearance—1919, 1923 and 1930 Acts,
- (3) Special Rural Housing—1924, 1926, 1930 and 1931 Acts

Although there is considerable overlapping of these divisions in time, and although some Acts cover more than one division, it is better to follow this arrangement rather than a chronological one.

(i) General Housing

Housing and Town Planning, etc., Act 1919 (The Addison Scheme)

Under this Act Local Authorities had to prepare schemes for their areas providing for working-class houses.

To meet the annual loss (i.e. the difference between the net revenue from the rents which could be charged for the houses, and the outgoings for interest, repairs, sinking fund, etc.) the Government undertook to bear on behalf of each Local Authority during the period of the loan, the annual deficiency resulting from approved expenditure, in so far as it should exceed the annual proceeds of a local penny rate, which was to represent the contribution of the Local Authority towards the loss.

The number of houses provided under this scheme rapidly increased until 1921, by the autumn of which year about 75,000 houses had been completed. It was decided then that the total number to be produced should be about 175,000. The number of houses then under construction was considerable, for rather over 100,000 were completed between September 1922 and September 1923. After this, production fell off rapidly but did not entirely cease until 1930. The total number of houses built under the Act was just under 214,000.

The amount of the penny rate represented in most cases a very small proportion of the loss, and the position was soon reached that the whole of the further loss on the schemes fell on the Government. On the one hand this gave little encouragement to economy on the part of Local Authorities, and on the other hand it sometimes promoted the cutting down of the standard of building as means of reducing the price, and so securing the approval of contracts very advantageous to the Local Authorities.

The regulations made under this Act provided that the rent—the essential factor in determining the loss involved by the scheme—was to be fixed at the level ruling in the district for pre-war houses of the same type. The assistance was confined to working-class dwellings.

Housing costs were at the time high, and the share borne by the Exchequer was very considerable, so that about 50 per cent of the present annual subsidy payments come under this Act, and the Additional Powers Act of the same year. The money was raised on long term (mainly for 40 years) and carried a high rate of interest. The annual payments, which vary slightly according to the produce of the 1d. rate, are about £6½ million.

As regards houses built by public utility societies, the Act, without attempting to interfere with the management of the building or the rents charged, provided that the State subsidy was to be based on the amount of the annual interest and redemption charges on the capital invested in the building. The State undertook to cover 80 per cent of the charges for interest and redemption on the capital cost of approved schemes and in addition granted certain credit facilities to the societies. The State share was subsequently increased to 50 per cent for the period ending March 31st, 1927, and 40 per cent thereafter. The housing societies did not make any extensive use of these facilities.

Housing (Additional Powers) Act 1919

This Act laid down that State subsidies were to be given in the form of non-repayable lump sum payments, fixed in the first place at £130-£160, according to the size of the house, increased in April 1920 to £230-£260. Special directions were issued specifying the types and limiting the total cost of the houses in respect of which assistance would be given.

• As a result of the rapid rise in building costs and interest rates between 1919 and 1921, this system became a heavy burden on the Treasury. In 1921, therefore, it was decided to suspend the grant of further subsidies and to limit the Government programme to the houses already built by Local Authorities and public utility societies (or in course of construction or covered by tenders approved), and to houses built by private enterprise which were completed by a prescribed date.

These two Acts produced 170,090 houses built by Local Authorities and 48,781 built by private enterprise between January 1st, 1919, and March 31st, 1930, the great majority between 1921 and 1928.

Housing Act 1923 (The Chamberlain Scheme)

The Government undertook to give a definite and limited contribution of £6 per annum per house for a period of 20 years towards the loss which the Local Authorities might incur in building houses, the latter taking all risk of further loss. Moreover, to encourage private enterprise, the Local Authorities were authorised, under schemes to be generally approved by the Minister of Health, to give assistance to builders or others wishing to erect houses suitable for the working class. The houses built were not, however, usually suitable for the working-class, otherwise the Labour Government would not have passed the Housing (Financial Provisions) Act, 1924.

The assistance could either take the form of passing on to the builder the £6 per year for 20 years, which they would receive from the Government, or the Local Authorities could, on the security of this payment, raise the equivalent sum, about £75, and give it as a capital grant to the builder, or refund part of the rates levied on the house. They were further empowered to increase the amount of the grant at the expense of the local rates. Many Local Authorities did in fact pay lump sums of £100 or even more per house.

The grants applied to houses for both letting and selling, and there were no statutory limits of rent. They were, in fact, used mainly for houses for sale built by private enterprise, which proved too expensive for the working-class generally, but attractive to lower middle and artisan class. The Act was, in fact, designed to encourage private enterprise, and before direct efforts by Local Authorities could qualify for the subsidy, the Minister of Health had to be satisfied that the need in their district could not satisfactorily be met by private enterprise.

Grants were not terminated in 1925-26, as provided in the original Act, they were extended by the 1924 Act till 1929, but subsequently reduced from September 1927 on, to £4 per annum, and terminated in September 1929.

This Act produced 75,809 houses built by Local Authorities and 362,788 by private enterprise between September 1923 and September 1929. The annual charge on the Exchequer is about £2½ million.

The floor space of each subsidised house was limited, if the house were of two storeys, to a minimum of 620 square feet (or in special cases 570) and a maximum of 950, if one storey to a minimum of 550 (or in special cases 500) and a maximum of 880, the minimum being fixed to maintain a definite standard, the maximum being designed to focus efforts on houses for those who could only afford the lower prices or rentals.

Additional powers were also given to Local Authorities to assist private enterprise by way of loans to builders of houses not exceeding £1,500 in value. The Small Dwellings Acquisition Act was amended so as to facilitate loans to owner-occupiers for houses not exceeding £1,200 in value. Guarantees to building societies were also authorised so that Local Authorities could assist their operations if they so desired.

Housing (Financial Provisions) Act 1924 (The Wheatley Scheme)

The new Labour Government which was then in power, considering that the previous Act had not adequately stimulated the building of dwellings to be let to the poorer classes, introduced a further Housing Act known as the Housing (Financial Provisions) Act 1924. In addition to the terms of the former Act, it created a new form of financial assistance, namely, an increased subsidy given for houses built under covenants that they were not to be sold but to be let under special conditions. The most important was that so long as the annual charge on the rates did not exceed £4 10s. per house, houses should be let at rents not exceeding those of similar pre-war houses for the time being prevailing in the district. The 1923 scheme, with its provisions for a lump sum grant and its freedom to sell, naturally proved the more attractive to private enterprise, while the 1924 scheme, which authorised a subsidy of £9 per year for 40 years in urban areas and £12 10s. in agricultural areas for the same period, proved more attractive to Local Authorities. They were in a position to comply with the conditions as to letting, and could limit the rents to the required amount by meeting any additional

loss out of the local rates. As stated above, under the terms of the Act they were required to do this up to, but not exceeding, an amount of £4 10s per annum. After this, if further loss was entailed, owing to the relation of local costs to prevalent rents, these rents could be increased sufficiently to keep down the contribution from the local rates to the figure of £4 10s per annum.

This Act produced 498,449 houses built by Local Authorities and 14,936 by private enterprise between March 1925 and March 1934, at an annual Exchequer charge of £3½ million, and a figure estimated at £1 to £1¼ million on rates.

The subsidy was revised from September 1927, when the annual grant of £9 was reduced to £7 10s in urban areas, and from £12 10s to £11 in rural areas. At the same time the maximum liability of the Local Authorities was reduced from £4 10s to £3 15s. The grants terminated in December 1932.

These Acts have produced a grand total between the Armistice and 31st September, 1934 of 1,198,817 houses in all, as compared with 1,150,522 houses produced during the same period without financial assistance.

Housing (Financial Provisions) Act 1933

Under this Act the subsidies granted under the 1923 and 1924 Acts to encourage the building of new houses have been discontinued. The subsidy offered for slum clearance is, however, maintained in full. To encourage Local Authorities to guarantee loans made by building and other societies (so as to secure a reduction in the rate of interest on mortgages, etc.) power is given to the Minister of Health to reimburse them for part of any loss sustained.

The building societies agreed to lend under the Act at one per cent below their normal rates, on loans for 30 years. So far the number of houses built under the Act has not been great, 1,613 being produced in the first year of operation.

(ii) Slum Clearance

Housing Act 1919

The provisions for the erection of new houses contained in the Act of 1919 previously referred to, also extended to schemes undertaken by Local Authorities for the clearance of unhealthy areas. As the liability of the Local Authority was definitely limited, it followed that the loss resulting from the carrying out of a slum clearance scheme, in addition to a scheme for the provision of new houses, was to be borne by the State. This arrangement was terminated in 1921.

Housing Act 1923

Provision was made in this Act for subsidising slum clearance schemes in a new way. The Ministry of Health was to make grants to Local Authorities towards the loss incurred, and the amount of the grant, which was to take the form of a fixed annual contribution, was to be settled in each case by consultation with the Local Authority, but was not to exceed 50 per cent of the estimated average annual loss likely to be incurred in carrying out the scheme. Some 14,000 houses were produced under this Act.

Housing, etc., Act 1930

The Housing Act 1930 established yet another system of subsidies for slum clearance, the rate of which is calculated on the basis of the number of persons displaced, who are subsequently to be provided with new dwellings at low rents. The annual subsidies granted must amount to 45/- per person rehoused in the towns, 50/- in rural districts in England and Wales, and 50/- or 55/- in Scottish rural and urban areas. Supplementary subsidies may be added if—as is frequently the case in Scotland especially—part of the condemned building is not in fact insanitary, and on this account has to be purchased at the market value. In this case the subsidy can be raised by a maximum amount of 15/-. Where the cost of land exceeds £3,000 per acre in central urban areas and it becomes necessary to rehouse displaced workers in tenement buildings of more than three storeys, the rate of subsidy is raised to 70/- per person rehoused. These subsidies are made subject to revision every three years.

Some 17,450 houses were provided under this Act up to March 1934.

In April 1933, as the Government regarded the rate at which the slums were being dealt with under the 1930 Act as too slow, the Ministry of Health requested Local Authorities (a) to prepare and adopt a programme, the component parts of which should be

- (1) A list of the areas in which clearance is necessary, with information of the number of houses to be demolished in each and the number of their inhabitants,

- (2) A list of the areas in which improvement by way of reconditioning or otherwise is necessary, with information as in (1) above,
 - (3) A time-table for the initiation, progress and completion of action to secure clearance or improvement, as the case may be, of all these areas, and
 - (4) A time-table of rehousing co-ordinated with the displacements contemplated by the time-table of clearance operations
- (b) To make an immediate beginning with the programme by the declaration as clearance or improvement areas of such areas as can be immediately dealt with, and by making the necessary orders

(iii) Rural Housing

Many of the dwellings built in rural districts have been occupied by workers of neighbouring urban districts instead of by agricultural workers, whose wages are frequently so low that they are unable to pay even the reduced rents of subsidised houses. The problem of housing rural workers proper is mainly a question of reconditioning existing dwellings in agricultural areas, rather than building new houses, for there are few districts in which the agricultural population is increasing.

As mentioned above, the Housing (Financial Provisions) Act 1924 sanctioned larger subsidies for the erection of dwellings in agricultural parishes than in other districts.

Housing (Rural Workers) Act 1926

This Act was passed to supply the special needs of rural workers, and entrusted county councils with the work. The latter are empowered to assist in financing the improvement of old houses or the conversion of existing buildings for occupation by agricultural workers, provided that the work involves an expenditure of at least £50 on houses of which the value on completion does not exceed £400. For this purpose they may grant subsidies either in the form of lump sum contributions to the work of repair or in the form of annual payments during a maximum period of 20 years. The total subsidies granted may not exceed two-thirds of the outlay involved, or £100 per house. The Act provides that the benefit of the subsidies is to be passed on to the tenants, whose rents during 20 years may not be raised above the normal level of rent ordinarily paid by agricultural workers in the district. No departure from this rule is permitted unless the landlord receives less than 8 per cent interest on the capital invested by him in the improvements. Further, county councils may, in addition to subsidies, grant loans for the work up to 90 per cent of the value of the improved dwelling.

Exchequer assistance may be granted in respect of the subsidies paid by the authority under this Act, on the basis of half of the annual charge which would have been incurred had the subsidies been met from a 20-year loan. By the Housing (Rural Workers) Amendment Act 1931, the period of operation of the 1926 Act was extended to October 1936.

Housing Act 1930

Under this Act, provisions were included for assigning to county councils the duty of keeping in constant touch with the housing conditions in rural districts, and of satisfying themselves that adequate steps are being taken to secure any necessary improvements. The county councils are further empowered to provide financial and other assistance for the rural district councils, and required to make a contribution of at least £1 per annum per house for new houses occupied by members of the agricultural population.

Housing (Rural Authorities) Act, 1931

This Act enables additional Exchequer assistance to be granted, on the recommendation of an Advisory Committee appointed under the Act, towards the provisions of houses for occupation by agricultural workers and others of a similarly low rent-paying capacity, in agricultural parishes of rural districts whose councils satisfied certain conditions and made applications before the 30th November, 1931.

In May 1933 the Ministry of Health issued a circular (1935) to all county councils and rural district councils, intimating that slow progress had been made with the bettering of rural housing under the 1926 and 1931 Acts. It was stated that the Exchequer subsidy, combined with the contribution from the rates which the 1926 Act required, is equivalent to about 5/- per week.

Subsidies and the Problem of Poverty

We have thought fit to include this survey of housing subsidies in order to illustrate some of the less satisfactory features of past subsidy legislation as a means of securing an adequate supply of working-class housing. It has been essentially a wasteful method in that the benefits have tended

to go to no small extent to parties for whom they were not intended—to a class of wage-earner which had little moral claim to subsidised accommodation and to the building and building materials industries—while an anomalous situation has arisen in respect of the rents paid by tenants of houses immediately above and tenants immediately below the subsidy level. We have, however, remarked that the housing problem is only partly a problem of erecting houses at the lowest possible cost, and is partly a problem of poverty. Even if rents can be reduced substantially through a reduction in building costs, they may still prove to be beyond the capacity to pay of the lowest wage-earners. In face of such a problem, subsidies in some form might be the only means of securing a supply of houses of the requisite rent standard and may therefore require further consideration in connection with housing. In the absence of adequate information on the level of earnings, it is difficult to state this problem in quantitative terms, but we have, at a later stage, drawn attention to the special case of the depressed areas, which arises largely through the heavy incidence of rates. For this particular problem, if the administrative difficulties can be overcome, de-rating would appear to be the most logical and equitable solution. But whatever the solution adopted, granted always that some subsidy proves necessary, the method of giving it, and the likelihood of its reaching the intended destination, would, in the light of past experience, need to be very carefully reconsidered.

III. STANDARDS AND REQUIREMENTS

(I) DESIGN AND AMENITIES

Design

It is not possible to lay down any minimum standard for housing having absolute validity at all times and in all circumstances. The following definition of a minimum will, it is hoped, be acceptable as a working basis in the present conditions, although on some points it may be counted too harsh and on others too generous. In that event it may be modified, or reservations made accordingly, but the principle of defining a minimum and the broad conception of a minimum presented here will not necessarily be invalidated.

The following points should be borne in mind

(a) This minimum is intended to apply to all dwellings already built or to be built in the future. It does not apply to boarding-houses, hotels and institutions, nor to "families" containing only one person.

(b) A minimum applicable to new dwellings alone would have to be made more exacting if such dwellings are not soon to become obsolete.

(c) An attempt has been made to devise a technique of measurement for as many factors as possible. There are, however, one or two factors which defy measurement, the most important of these being the general design of a building, internally and externally, and its amenities.

(d) This scale is only intended to apply to towns of 10,000 or more inhabitants. The problem of rural areas is not considered here.

(e) It is assumed throughout that this minimum standard of housing would be treated as supplementary to a minimum standard of diet, preliminary work on which has been done by the Research Group of P. E. P.

There are three main elements in a minimum standard

(a) Number of rooms, which must vary according to the number of persons concerned and their sub-division according to family groups, ages and sexes.

(b) Structure and equipment, including the size, condition and resources of the accommodation, which do not vary so closely according to the number of users.

(c) External factors, including accessibility to work, recreation and common services, amenities and so forth.

Number of Rooms

As to number of rooms, an acceptable minimum standard has already been laid down in essentials by "The Architects' Journal" (June 22nd, 1933, pp. 815-818). This minimum provides as nearly as possible for a standard of one and a half to a room as the highest tolerable density, in particular cases some overstepping of this limit is often unavoidable, but the average ought to be borne in mind.

The scale resulting from an adoption of this basis, with allowance for sex separation, above ten years of age, is as follows

(a) Man and wife, two rooms (b) Man and wife plus one child, two rooms (c) Man and wife plus two children of the same sex or under 10, three rooms (d) Man and wife plus three children of the same sex or under 10, four rooms (e) Man and wife plus four children of the same sex or under 10, four rooms (f) Man and wife plus two children of different sexes, three rooms. (g) For man and wife and more than two children of different sexes, add rooms so that not more than three children of one sex need sleep in one room (h) For one extra adult, add one room (j) For two extra adults of the same sex, add one room to (a), or two rooms to (b), or one room to (c) (k) For two extra adults of different sexes, add two rooms, except where a room can be shared with a child under 14, or without the standard of one and a half per room being exceeded.

(Only some of the more usual family units are given others can be estimated on the basis of one and a half per room. Rooms, as defined for the Census, are the usual living rooms, including bedrooms and kitchens, but excluding sculleries, lobbies, closets, bathrooms, or any warehouse, office or shop rooms.)

Structure and Equipment

The above purely numerical standard must be used in conjunction with other criteria which cannot always be numerically expressed. It is suggested that these criteria should be

(a) *Size of Rooms* No room should be counted in the calculation of a minimum which has a floor area of less than 90 sq feet, in which the height to the ceiling averages less than 7 ft 6 ins, or in which there is not a minimum space of 360 cubic feet per person¹. Rooms of 65-90 sq feet floor area may only be reckoned as half-rooms.

(b) *Structural Separation* No dwelling can be included in the minimum which involves permanent use by a family of rooms which are not structurally separated from those of other families. (The Census definition of a structurally separate dwelling is: Any room, or set of rooms, intended or used for habitation, having separate access either to the street or to a common landing or staircase. Thus each flat in a block of flats is a separate unit, a private house which has not been structurally sub-divided is similarly a single unit, whether occupied by one family or several families. But where a private house has been sub-divided into maisonnettes or portions, each having its front door opening on to the street or on to a common landing or staircase to which visitors have access, then each such portion is treated as a separate unit.)

(c) *Light and Air* The angle from the lowest inhabited floor level of any dwelling or block of dwellings (measured from the outer face of the wall) subtended by any obstruction to light should in no case exceed 45 degrees. Windows must not be smaller than one-tenth of floor area, with a 50 per cent minimum opening. All bedrooms without a flue, w.c.'s and larders should be provided with an air-brick of 9 in. by 9 in., 50 per cent open, or the equivalent in ventilation.

(d) *Approach* If the dwelling is on an upper floor it must be reached by stairs which are safe and reasonably lit, and must not be more than four storeys high, unless a passenger lift is provided without extra charge. There must be a paved way from the street by which access is gained.

(e) *Sanitation* There must be a separate w.c. for each family, within the structurally separate dwelling. There must be efficient and direct connection with the main drainage system of the area.

(f) *Water* There must be a constantly available supply of safe drinking water laid on within each structurally separate dwelling, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(g) *Artificial Lighting* There must be provision for lighting adequate to prevent risk of fire or injury to eyesight in ordinary conditions of use, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(h) *Cooking* There must be provision for cooking of a capacity adequate to the maximum size of family for which the dwelling is appropriate, in working order, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(j) *Heating* There must be provision for heating at any rate of the living room, with reasonable efficiency, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(k) *Washing and Bath* There must be provision for washing clothes and for bathing the body within the building, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay. Where properly managed communal arrangements for washing and drying clothes are available at the same or less cost within a distance of ten minutes' walk, these may be considered adequate.

(l) *Storage* There must be provision for clean and hygienic storage of a limited quantity of fresh food, for utensils, and for storage of coal or coke where required. There must be proper facilities for drying clothes, preferably indoors, so that they need not be dried in the kitchen or sitting-room.

(m) *Repair* The structure as a whole and all essential equipment must be kept within a state of repair which is safe and serviceable for the occupants. There must be machinery for seeing that repairs for which the tenants are liable, as well as repairs for which the landlord is liable, are satisfactorily carried out and for redecoration when necessary.

(n) *Refuse* There must be adequate hygienic provision for the temporary storage and for the regular collection of refuse, and for the cleaning of approaches to dwellings.

(o) *Vermun* Damp, rats, bugs, cockroaches and fleas must not be present.

(p) *Management* There must be a routine arrangement for hearing and dealing with complaints at reasonable intervals, and for the regular and efficient inspection and repair of the property.

¹ It has been represented to us that many Medical Officers of Health would not consider even a minimum height of 7 ft 0 ins nor an air space of 360 cubic feet per person adequate, and this standard may require revision.

Amenities

The minima laid down above still need to be considered in conjunction with certain other factors which, though external to the property itself, are relevant to its suitability and habitability:

(a) *Accessibility for Employment* The minimum has not been satisfied in the case of any tenant who is normally compelled either to spend more than one hour in travelling each way in order to get most conveniently between work and home, or to pay a fare averaging more than 5s. per working week for the journey

(b) *Accessibility for Services.* The minimum has not been satisfied if the essential services of transport, shops, and the community services provided by local government are not reasonably accessible from the site

(c) *Children* Where children are concerned, the minimum includes somewhere to play in the open air which is immediately accessible, is not open to fast traffic, and is supervised in cases where for any reason supervision is essential to safety or health. It also includes the provision, within either half-an-hour's walking distance or at a transport cost not exceeding 2d return, of adequate public open space where organised games may be played, including both grass pitches for football and similar games, and paved pitches for other games available for use when the grass is so wet that it cannot be used for fear of damage. Adequate provision for medical and nursery school services must also be included

(d) *Health* The minimum has not been satisfied where the air contains on any normal occasion more than 10,000 suspended particles per cubic centimetre,¹ where the average figure for ultra-violet rays is less than half that for the surrounding rural area, where there is no public open space within half an hour's walk of at least five acres extent, or where the noise in the neighbourhood of the dwelling is normally in excess of 80 decibels.

(e) *Shops and Entertainments* The distance from the home to the nearest shopping centre must not exceed half-an-hour's walk or a 2d return fare in urban districts, and adequate provision, having regard to the nature of the site, must be available for entertainment

In addition, certain, at present, indefinable amenities must not be overlooked because of the difficulty of laying down standards. Every unit of accommodation must be designed both for convenience and to avoid barrack-like monotony and drabness. Cheerfully coloured paintwork need not be more expensive either in first cost or in maintenance. The proper planting of open spaces is essential, and the choice of plants must be made with a view to creating cheerful effects. The usual planting of evergreens can only be justified on the ground that they are equally dingy throughout the year. The purpose of the standard is to produce homes which the tenants may enjoy, not the minimum of shelter to maintain a minimum of health and efficiency.

It is suggested that before use the standards should be examined and any minor variations or exceptions which may be considered desirable in the particular circumstances should be noted. The investigator will then be able to take either a sample or a whole area of suitable extent and ascertain how many families in it fall below the numerical minimum of overcrowding and below any of the other items affecting amenities or other requirements. Where the shortcomings prove to be wholly or mainly on overcrowding, a rearrangement of the families through increase in number of dwellings is plainly necessary. Where the shortcomings are on size of rooms or structure, reconditioning (perhaps accompanied by change of management) may suffice, and it becomes a financial question as to which, if any, of the dwellings can be brought up to the minimum by these means more economically than by clearance and reconstruction. Should the failure come under external services and amenities, partial or complete replanning of the site may prove the only solution.

We have observed that it is intended to prepare a definition of overcrowding and a minimum standard for the purposes of the Bill on this subject which is shortly to be introduced by the Government. While we welcome this step we are of the opinion that overcrowding cannot be divorced from the general question of standards which should be attacked as one problem.

In the absence of any approach to uniformity in the rents of houses it is impossible to express this minimum housing standard in terms of money, but it should be clearly recognised that accommodation as defined above remains inadequate if the total weekly rent and rates exceed from one-fifth to one-sixth of the total weekly income of the family accommodated. In this connection a survey is urgently required of the average incomes of wage-earning families in different parts of the country.

¹ Pure fresh air contains on an average 330-400 particles, a London fog may contain as many as 20-30,000

Relation between Amenities and Cost to the Tenant

In consideration of standards of equipment too little attention has been given in the past to the question of how far the owner or property manager should consider the provision of additional apparatus or alternative design with a view to decreasing the living costs of the tenants. There appears to be a tendency, particularly in very recent blocks of flats, to provide improved equipment and more modern design which is definitely going to increase the cost of living in those flats. In one case certain living rooms have a quite exceptional glass area which must seriously increase the cost of heating apart altogether from the cost of curtaining, which must be a considerable problem for the tenants, who were drawn from the lowest wage-earning groups. In another case washing coppers, which also supplied water for baths, were fired either with gas or electricity. Even if quite exceptionally low rates were quoted, such heating cannot compare in cost with the variety of fuel and combustible rubbish obtained as a perquisite of many jobs, or even in less strictly legal ways, which normally goes into the "copper hole."

There seems to be a tendency also to provide more and more fixed and built-in furniture, the desirability of which at any rate requires more consideration than has so far been the case. Such fixed furniture, if the premises should become bug-infested, is much more difficult to clean, and where the tenant already has furniture which he is loath to part with will lead to unnecessary congestion of the rooms. On the other hand in the absence of built-in furniture, the bringing-in of old and possibly infested furniture by the tenant is inevitable. It is possible that this difficulty can be overcome by some arrangement for the provision of furniture on the Leeds system. The results of this system will be watched with interest.

The provision of constant hot water is already attempted in certain cases, and there is no reason why central heating or the additional insulation of walls should not be attempted.

In each case the provision of these additional conveniences is probably desirable on the general grounds of improving conditions of living, and in most cases grouped supplies are probably far more economical. It would appear, however, that further independent enquiry as to the actual additional charge to the tenant is essential. The tenant may not be able to afford the added convenience of electric or gas copper heating, and if no alternative is provided he must draw from the already limited amount devoted to food and pleasure. Such amenities form a pleasant but unsatisfying diet.

In addition there is the natural difficulty of the tenant in realising quite the extent of the economy to him of the services provided. There would seem to be a case for stating in each rent book the basis on which the rent is made up, on the lines adopted on most rate demand and income tax forms. Exceptional amenities and equipment might, where possible, be made optional and paid for only when and where the tenant can afford them. For instance, in one French scheme central heating is laid on to all rooms, but the radiators are only supplied on demand and at a fixed charge per square foot of heating surface per annum. Similar arrangements could be made in connection with fitted furniture and cooking and clothes washing apparatus generally. The hire of gas and electric stoves is, of course, a common practice, and shows that it is not insuperably difficult. It also ensures that apparatus is kept reasonably up-to-date.

(2) NUMBER

Calculation of the present deficiency of working-class houses and the amount of building necessary to eliminate it and to prevent its recurrence in the future, involves the consideration of a number of factors. The ideal objective is the housing of the population, present and future, in dwellings of at least the minimum standard as regards density of occupation and amenities, which will provide separate accommodation for each family, within certain limits to be discussed later. The attainment of this ideal would involve

- (a) The rehousing of a certain number of families at present living in conditions amounting to overcrowding but in dwellings which are structurally habitable
- (b) The rehousing of families at present living in dwellings not structurally fit for habitation
- (c) The provision of new houses to provide for the increase in the number of separate families, so long as such increase is to be expected
- (d) The provision of new houses to replace dwellings at present fit for habitation but which will become unfit in the future, through deterioration or a rise in the standard of requirements

With regard to (a), it will obviously not be necessary to displace all the inhabitants in areas at present overcrowded, provided that the accommodation remains suitable if less densely occupied, or, where the difficulty is not one of overcrowding per house but excessive density per acre, provided that part of the existing accommodation is evacuated and destroyed.

With regard to (b) nothing less than complete demolition or, in some few cases, reconditioning will suffice.

Under (c) future requirements must be adequately anticipated if the recurrence of the present problem is to be avoided

The provision of replacement dwellings, under (d), in so far as it is necessitated by rising standards, will naturally be governed mainly by the progress achieved under the first three heads, and may, therefore, be given only secondary consideration

Past Estimates of Housing Requirements

(a) A number of estimates of national housing requirements have been made since the War. In the first instance, the Joint Committee on Labour Problems in 1919 made a review of the situation resultant on the cessation of new building during the War, and formed an estimate of 1,000,000 as the actual shortage of houses, over and above a yearly requirement of 100,000 to keep pace with the growth and movement of the population and the deterioration of existing property. The total shortage of 1,000,000 was divided into 850,000 for England and Wales and 150,000 for Scotland.

In the thirteen years 1920-32 rather more than 2,000,000 houses were provided against the estimate of 2,800,000 required. 1,860,000 were provided in England and Wales against about 2,000,000 required, Scotland was less fortunate, with 160,000 provided against 800,000 required. Building progress between 1920 and 1932, therefore, failed by about 800,000 to meet the estimated requirements in 1919 which was certainly a minimum and not a maximum figure. There is, in fact, some reason to suppose that it covered not much more than the actual physical deficiency of accommodation due to the increased demand through demobilisation, without paying much attention to the overcrowding or insanitary conditions which had become normal over wide areas.

(b) An unofficial examination of the position was undertaken in 1929 by the National Housing and Town Planning Council. The conclusions of this body were as follows:

"There are probably in England and Wales over 1,000,000 houses below a satisfactory standard, and 2,000,000 (including many of the unfit houses) which are seriously overcrowded. To remedy these conditions, at least 1,000,000 new working-class houses are immediately needed, although the absence of sufficient data prevents these figures from being more than an estimate. A national programme should be adopted for building for the next ten years not less than 150,000 subsidised working-class houses each year. During the next ten years 1,500,000 working-class houses should be built in England and Wales, of which 1,000,000 should be let at a weekly rental of about 11/- gross (i.e. including rates) and 500,000 at about 7/6 gross."

The report did not cover Scotland, but on the same basis, an allowance of 200,000 houses should be added as the ten-year requirement. The reduction of annual requirements from the 200,000 estimated in the 1919 report to the 150,000 visualised here is rather more than accounted for by the large number of houses built in the interval and by the exclusion of Scotland.

(c) Under the Housing Act of 1930, the Ministry of Health reaffirmed the responsibility of Local Authorities for duly providing for housing needs within their jurisdiction, over and above the achievements of private enterprise. At the same time, the Ministry required every Urban Authority with a population of over 200,000 to formulate a quinquennial statement of the steps which they proposed to take for dealing with housing conditions in their area, and for providing for new accommodation. Programmes on these lines were received by December 31st, 1930, from Authorities representing about five-eighths of the total population of England and Wales. The total estimated production by these Authorities was 840,000 houses in five years, or an annual rate of 68,000. On the assumption that other Local Authorities would maintain the same rate of increase, the Ministry anticipated an annual rate of production by Local Authorities of 90,000 houses in the period 1930-36. On the further assumption that the rate of building by private enterprise remained at the level of 1930-31, it was estimated that the total annual production would average 200,000 during the period.

In fact, the production realised was as follows (England and Wales)

1931-32	.	.	200,812
1932-33	.	.	200,496
1933-34	.	.	266,622

Slum clearance proposals outlined in these programmes involved the demolition of 96,000 dwellings equivalent to about 150,000 for England and Wales as a whole and representing a loss of 30,000 houses annually.

The Ministry appeared to put forward these anticipations as satisfactory estimates of the nation's housing needs. At 200,000 per year for England and Wales—equivalent to 220,000 for Great Britain as a whole—they were admittedly more generous than either of the preceding estimates quoted, when expressed as annual requirements. But it will be noted that they involved a five-year programme only.

(d) In October 1933, Sir Ernest Simon, in "The Anti-Slum Campaign," made an estimate of housing requirements on the basis of the number of "private families" and "separate dwellings" as defined and recorded in the 1931 Census. The excess of the former over the latter given by this result, as quoted by Sir Ernest, was 830,000 (8 per cent of all families) which he takes as the measure of the present shortage, adding 750,000 as the increment need of the next ten years, on the bold assumption that this will be the number of new families created in the period 1931-41—apparently irrespective of the rate of house provision. This estimate, therefore, gives an annual requirement for England and Wales of 158,000 for ten years—equivalent to 177,000 with the inclusion of Scotland—without allowance for replacements of existing houses becoming unfit or demolished under slum clearance schemes.

The adoption of an unmodified "one family—one house" standard is in any case unreliable. 7 per cent of all families recorded under the 1931 Census were families of one and 21 per cent families of two persons. It is reasonable to suppose that many of the families of one and some, at least, of the families of two, neither need nor desire to have separate dwellings. Moreover, the Census definition of a separate dwelling demands that it should be structurally separate—i.e. flats not having separate access to a common staircase are not held to be separate dwellings—and there is no doubt that a large number of additional separate dwellings, in the Census meaning of the term, could be created by the structural sub-division of existing houses. On the other hand, the Census definition of a family as "any person or group of persons in separate occupation of any premises or part of premises," leaves open the possibility of the emergence of an indeterminate number of new families within the meaning of the Census, if further large supplies of new dwellings at sufficiently low rentals were to be made available. There is no doubt that the extraordinary increase in the number of families, and the decline in their average size, recorded between 1921 and 1931, was due to new building during the period facilitating the break up of what were for Census purposes in 1921 single families, but in fact two or more families, spreading over two or three generations, living under the same roof.

(e) Sir Ernest is opposed to the present policy of direct slum clearance and, therefore, makes no serious attempt to estimate the replacement need on this score. Slum Clearance, however, is the focal point of the Ministry of Health's present programme, and on the basis of returns received from Local Authorities will require the provision of 285,000 new houses within five years. This is admittedly not the full need and does not cover Scotland, probably a further 150,000 to be provided in a further five-year period would give only a conservative estimate of replacement needs for Great Britain as a whole. This gives an annual replacement need of 48,600 on a ten-year basis. For the provision of new houses, to meet the shortage and expanding demand, the Government is now relying on at least the continuance of unsubsidised enterprise at the rate of activity established over the last three years which amounts to 160,000 per year, with a rising tendency. The provision of 210,000 houses per year for the next ten years (the rate of production without subsidy in 1933-34) would, therefore, seem to be a fair measure of the Government's present ambitions.

(f) In contrast to Sir Ernest Simon's "family basis," Mr. Phillip Massey, in a survey published in the *Architects' Journal* of June-October 1933, takes overcrowding as his criterion. This survey is based on the examination of Census figures and other available material, for London and fourteen other large cities with a combined population of 11½ millions. Working on a series of approximations and assumptions, which seem generally sound, it reaches the conclusion that (i) to abate overcrowding at more than 1½ persons per room, and (ii) to replace all unfit houses, 578,000 houses were needed in 1931 in the area surveyed. On the more risky assumption that the rest of the country would show needs at half this rate, the immediate housing needs of Great Britain are assessed at 1,400,000 new dwellings. For a ten-year programme, a further 400,000 are added to meet increases in population and losses through deterioration, conversion, etc., and the combined requirement is assessed at 180,000 houses annually for ten years.

Mr. Massey's whole calculation depends on the assumption that 1½ persons per room is the proper occupation limit. Though there are good arguments for this as an average standard, it should be noted that the L.C.C., with the approval of the Minister, is adopting a basis of 1½ for its new tenement buildings.

(g) Another estimate that was more ambitious in its scope, appeared in *The Economist* of March 31st, 1934. Here a twenty-year period covering the years 1931-51 was adopted. The survey first of all took account of the probable excess of "natural families" over "Census families," assuming that the shortage

of accommodation at low rents has compelled many married children to continue living with their parents when they would have preferred houses of their own. The number of "natural families" is arrived at by adding half the number of married persons under 75 years of age to the number of widowed or divorced persons of less than 75 years of age. This gives a figure of 10,454,000 "natural families" against the Census figure of 10,288,000, postulating a demand for a further 220,000 houses. In passing, it may be remarked that the allowance of a separate dwelling for every widowed or divorced person seems to us excessive in view of the extent to which such persons often prefer to live with their relations.

In the second place, it was discovered that 2,640,000 persons or 897,000 families were, according to the Census, living at a density of more than 2 per room. The minimum of rooms required to rehouse these families under satisfactory conditions was placed at 1,000,000 or, say, 200,000 to 250,000 houses. Consideration was also taken of the fact that millions more people were living at a density of less than 2 but more than 1 per room. The upper limit of rehousing to eliminate overcrowding was, therefore, fixed at 800,000.

Calculation of future housing needs due to expanding population was based on the number of births in the Census period 1911-81, which provides an accurate guide to the increase in families in the 1981-51 period. This produced a figure of 668,000 additional families in the 1981-41 period and a further 146,000 in the succeeding decade. Provision for expanding population was, therefore, fixed at 714,000.

If the life of a house is as long as 100 years, replacement of 1 per cent annually would be sufficient to maintain the existing supply. The structural life of most working-class houses is in any case probably considerably less, and taking into account progress in construction and design which should make for an increased rate of obsolescence a maximum allowance for replacement of 2 per cent was made. At this rate 8,780,000 of the 9,400,000 houses in existence in 1981 would have to be replaced by 1951.

The final item in the calculation is the allowance for slum clearance. No one has yet succeeded in measuring the slum problem convincingly. Therefore, the Ministry's immediate objective of eliminating 800,000 was taken as a minimum and Sir Ernest Simon's estimate, that 1,000,000 houses would be condemned if the Manchester standard were adopted, as the maximum.

Adding 10 per cent in each case for Scotland, the lower estimate of the number of houses needed within twenty years aggregated 8,755,000, the upper limit 7,258,000. This would involve building at the rate of 187,750 annually in the first case and 862,650 annually in the second. As parts of the programme are particularly pressing, building near the upper limit for the first five or ten years of the period would probably be no more than sufficient.

(h) The Council for Research on Housing Construction which produced a report in June 1984, found from examination of the Census figures relating (a) to the total number of dwellings, and (b) to the number of families of 2 or more, that the position in 1981 had deteriorated from the "far from satisfactory basis of 1911" to the extent of 4.6 dwellings per 100 families. In 1981 there were 98.5 dwellings per 100 families of 2 or more persons, in contrast to 108.1 in 1911. The real shortage was, therefore, estimated at 440,000 dwellings in 1981, which, in the opinion of the Council, had been reduced to 850,000 by the end of 1983.

With regard to slum clearance, the Council anticipated the construction of 850,000 rehousing dwellings in Great Britain within five years and assumed that new and replacement demand will be met by the continuance of private building at its present level of 200,000 annually for five years at least. The Council concluded that "an annual production for Great Britain of 250,000 dwellings for at least five, and probably ten, years is not incommensurate with the need, provided that of the 250,000 at least 200,000 are for working-class occupation and at least 150,000 are built *to let* at rents within the rent-paying capacity of the lower paid workers." The net increase in supply, allowing for the demolition of 60,000-70,000 houses per year under slum clearance schemes and the loss of another 40,000 to 50,000 through normal wearing-out, would amount to 150,000 annually which would be available to meet the existing shortage and to provide for expansion in the population and contraction in the size of families. Taking into account the fact that the population may be expected to reach its peak between 1940 and 1950, it was anticipated that "all accumulated shortage should have been overcome and all serious slum conditions abolished in ten or, at the most, fifteen years, thereafter new building would only be required to meet the wearing-out or conversion of old property, the migration of population and the progressive rising of standards."

(i) The National Housing Committee, under the chairmanship of Lord Amulree, published an estimate of the deficiency of houses in its report of July 1984. The Committee adopted a present deficiency figure of 1,110,000 houses—representing the difference between the excess of Census

families in 1981 over the number of dwellings—and added to it an allowance of 221,000 for the excess of natural over Census families, calculated as the basis employed by *The Economist*. This gross figure was then reduced to 1,000,000 to allow for the inclusion of lodgers and the number of people who would not desire separate dwellings, and the fact that there were 279,000 uninhabited houses in 1981. An allowance of 800,000 was then added to abate overcrowding at more than 1½ persons to a room. On the assumption that houses built in the early nineteenth century would enjoy a life of eighty to one hundred years, an annual replacement demand of 80,000 was allowed for and a further 80,000 annually allotted to the replacement of pre-war houses falling short of a satisfactory standard. Finally, *The Economist* estimate of an increase of 668,000 families in the next decade is adopted to provide for future needs and the total required during the next ten years, after a deduction of 650,000 for building in the period 1981-84 and 800,000 for overlapping in the estimates, was placed at 1,918,000, demanding an annual rate of building of about 200,000.

This estimate may justifiably be questioned on the basis of its allowance for overcrowding. Full allowance is first of all made on the basis of the excess of natural families over dwellings in existence in 1981, with a somewhat arbitrary subtraction for families who would not wish to be treated as separate entities, which in any case seems insufficient. A further allowance for overcrowding on the basis of occupation density is then made of 600,000. Although 800,000 is subsequently deducted for overlapping, there is some reason to suppose that if a liberal allocation for the abatement of overcrowding on the one family one house principle is adopted, the addition of a further 600,000 on the basis of overcrowding per room merely involves the counting of the same factor twice.

We do not propose to add to the already numerous estimates by attempting to define with any accuracy housing requirements during the next ten years beyond stating what appears to be the desirable minimum. The estimates already quoted agree approximately in placing needs at round about 200,000 annually. An attempt has been made to summarise them as follows.

SUMMARY OF ESTIMATES OF HOUSING REQUIREMENTS—ENGLAND AND WALES

	Present Shortage and Overcrowding	Expansion of Population	Obsolescence and Replacement	Slum Clearance	Ten Years' Total	Total Per Year
(a) Cttee on Labour Problems (1919), including Scotland	1,000,000	1,000,000	—	—	2,000,000	200,000 (10 yrs)
(b) Nat Housing and Town Planning Council, 1929	1,000,000	500,000	—	—	1,500,000	150,000 (10 yrs)
(c) Housing Act, 1980 M O H Plans, 1981	1,000,000	—	—	150,000	1,150,000 (5 yrs)	220,000 (5 yrs)
(d) Sir Ernest Simon, 1933	880,000	750,000	—	—	1,580,000	158,000 (10 yrs)
(e) Slum Clearance Programme, 1933	—	2,000,000	—	400,000	2,400,000	240,000 (10 yrs)
(f) Mr Philip Massey, 1933	1,400,000	400,000	—	—	1,800,000	180,000 (10 yrs)
(g) Economist, 1934 Upper Estimate	1,020,000	714,000	8,760,000	1,000,000	6,494,000	825,000
Lower „	420,000	714,000	1,880,000	300,000	8,314,000 (20 yrs)	165,000 (20 yrs)
(h) Council for Research on Housing Construction, 1934	1,500,000	—	400,000 —500,000	300,000 —350,000 (5 yrs)	2,500,000	250,000 (10 yrs)
(i) National Housing Committee, 1934	1,000,000	668,000	800,000	800,000	1,918,000*	200,000 (10 yrs)

* After deduction of allowance of 650,000 for building 1981-84, and 800,000 for overlapping

Number of Private Families in relation to Future Population

One of the principal points of divergence is the allowance made for the present deficiency of accommodation. In order to arrive at a reasonably accurate estimate of this figure and of future requirements on account of expansion of population, we suggest that, as a preliminary, families of less than two persons should be omitted from the calculation since they will not normally require separate houses. It is further assumed that only adult persons between 20 and 74 years of age last birthday will require separate dwellings. It is true that some persons of 75 or over do, in fact, live alone, or together as husbands and wives, in separate dwellings, but, on the other hand, some elderly persons who are under 75, especially widows and widowers, and a good many young unmarried persons of over 20, live, in the one case, with married sons or daughters, and in the other, with parents. For the section of the population aged 20 to 74, separate figures are taken at each selected date for married, single, widowed and divorced, on the basis of the 1981 Census return. For each group an estimate has been made of its contribution to the total of private families. Various considerations are taken into account in deciding the relative sizes of these different contributions. Thus it is assumed that the number of families formed by the married group will be rather less than half its total, because some of these people will be separated and some will live in their parents' homes. There will also be a small but not insignificant fraction of all the single persons, who will not live with their parents or friends, but will form separate families. Finally, not all the widowed or divorced group will be expected to require separate houses, because some of these will live with relatives.

In estimating for future years the distribution of families of various sizes, the same proportions are assumed as recorded in the 1981 Census. These showed a considerable change as compared with the 1921 Census, and it is of course possible, and even probable, that the tendency towards an increasing proportion of smaller families and a decreasing proportion of larger families will continue.

The results of these calculations show that the number of families is likely to continue to increase until near the middle of the century and that it will then begin to decrease. It is seen, moreover—and this is of considerable importance—that the decrease in the number of families does not begin until ten years later than the population itself begins to decline. Thus from about 1988 to about 1948, an estimated decline in the population is accompanied by further increases in the prospective number of families requiring separate dwellings. Hence it is an error to base housing requirements on the growth or decline of the total population; the relevant population for this purpose is rather the proportion between the ages of 20 and 75.

With these assumptions we calculate the probable increase in (1) the population between the ages of 20 and 75 and (2) the number of families of two or more persons, defined as private families requiring separate dwellings, as follows:

THE NUMBERS OF SINGLE, MARRIED AND WIDOWED OR DIVORCED (AGED 20 TO 74) IN THE POPULATION.
(Thousands)

Year	Single	Married	Widowed or Divorced	Total
1921 . .	6,505	14,847	1,888	23,235
1981 . .	7,810	16,825	2,041	26,176
1986 . .	7,649	17,527	2,175	27,351
1941 . .	7,829	17,941	2,226	27,996
1946 . .	7,968	18,258	2,265	28,491
1951 . .	7,922	18,155	2,252	28,329
1956 . .	7,788	17,884	2,212	27,829

PRIVATE FAMILIES OF MORE THAN ONE PERSON (F₂₊) COMPARED WITH THE TOTAL POPULATION
(Thousands)

Year	F ₂₊	Increase or Decrease (—)	Total Population	Increase or Decrease (—)
1921	8,212	} 1,332	37,887	} 2,101
1931	9,544		39,988	
1936	9,823	} 279	40,214	} 226
1941	10,055		39,870	
1946	10,233	} 178	38,984	} —986
1951	10,174		37,749	
1956	9,995	} —179	36,331	} —1,418

On this basis we find the excess of private families of more than two persons over the separate accommodation existing in 1931 to be 144,000, compared with an estimate of 1,110,000 on the "Census family" basis and 1,831,000 on the "natural family" basis. The estimated increase in families requiring separate dwellings for the period 1931-41 works out at 511,000.

Overcrowding and Slum Clearance

These figures, it will be understood, merely allow for the accommodation required to house separately all families for whom separate dwellings seem reasonably necessary. No account is taken of the fact that many families are already living under conditions of overcrowding or in dwellings unfitted for habitation, or both. In order to allow for the former, it seems reasonable to take account of the 2,640,000 persons who lived at a density of more than 2 per room in 1931. *The Economist's* adoption of 1,000,000 rooms or 200,000-250,000 houses to relieve this overcrowding seems a reasonable minimum. The reduction of overcrowding to below 2 persons per room would, however, be a wholly insufficient measure. Unfortunately, no information is yet available as to the number of persons in 1931 living at a density of between 1½ and 2 persons per room, the figure in 1921 was over 5½ millions. We will assume, therefore, that a further 200-250,000 houses must be added to abate overcrowding at more than 1½-1¾ persons per room.

(1) *Note on methods employed in the calculation of number of private families*

The starting point is an examination of the proportions recorded in the Census returns for 1921 and 1931 of single, married, and widowed or divorced persons in the population of age from 20 to 74 years last birthday. For each of the three groups the percentages obtained in the two years differ only in the first place of decimals and the mean of the two percentages is taken as that to be applied to future populations. Ps, Pm and Pwd, the single, married and widowed or divorced populations of 20 to 74, are then obtained by applying the appropriate percentage factors to the populations in 1936, 1941, 1946, 1951 and 1956, as previously estimated and recorded in the *Sociological Review* (April 1954).

We now turn to consider the relation of the number of private families to the single, married, and widowed or divorced populations. These are assumed to be connected by an equation of the form

$$F_{2+} = \frac{1}{2}Pm(1-X) + PsY + Pwd(1-Z),$$

where F_{2+} denotes families of two or more persons and X, Y, Z, are relative small positive fractions. In forming this equation we are guided by the considerations that we may expect the married group to give a total of families rather less than $\frac{1}{2}Pm$, the single group to give a total which is a small fraction of Ps, and the widowed or divorced group to give a contribution somewhat less than Pwd itself. The known figures for 1921 and 1931, families and population, are substituted, giving two equations, each involving X, Y, Z. There is an infinite number of values of the three unknowns which will satisfy these two equations. Indeed, we cannot assume that X, Y, Z remain constant from Census to Census. The relation is to be regarded as purely empirical and the method adopted to obtain suitable small positive values for the unknown factors is the simplest and most direct, which makes full use of the available data for 1921 and 1931 by a process of averaging. To go back before 1921 would introduce material which cannot under present conditions be regarded as appropriate. By putting Y and Z equal to zero in each equation, two values are found for X and their mean is taken. Similarly, a mean value is obtained for Z by putting X and Y equal to zero in each equation. The substitution of these mean values of X and Z in each equation then gives a pair of values for Y, of which again the average is taken. Since Ps, Pm, and Pwd have already been estimated for future years, the relation is now ready for use to determine the corresponding estimates of F_{2+} .

The 1931 distribution of families of different sizes is finally employed to estimate also the distribution of F_{2+} families in future years.

Our acknowledgments are due to Dr. Grace Leybourne and to the *Sociological Review* for the estimate of future population growth and distribution included in this section.

Normal Replacement

This leaves us with the task of estimating what must be the replacement demand due to the deterioration of existing property and what number of houses must be cleared immediately as unfit for habitation. Generally speaking, the houses built towards the end of the nineteenth century appear to have been structurally more durable than the building of the decade before the War. Replacement demand cannot therefore be adequately measured by writing off every year a predetermined percentage of the houses at present in existence, since their structural life is likely to differ widely. We would, therefore, agree with the Amulree Committee that the replacement of some 80,000 houses annually of those built 80-100 years ago is necessary on the score of old age. Further allowance must be made for the replacement of pre-war houses which are unfit and for some accumulation of replacements which have not been made since the War and which will be exceptionally heavy during the next ten years. The Government's programme of slum clearance is likely to involve the demolition and replacement of 800,000 houses within five years, the replacement of a further 200,000 in the subsequent five years will probably be necessary to abate even the worst of slum conditions. A combined annual replacement of unfit houses of 50,000 a year would therefore seem the minimum to be aimed at.

Minimum Requirements, 1931-41

Adding together the figures adopted, the minimum requirements of the ten years 1931-41 are obtained as follows (England and Wales)

Excess of families requiring separate accommodation	114,000
Overcrowding on the basis of $1\frac{1}{2}$ -1 $\frac{3}{4}$ persons per room	400,000-500,000
Normal replacement of worn-out property	300,000
Replacement of unfit houses	500,000
Allowance for probable increase in families requiring separate dwellings	511,000
Total	1,855,000-1,955,000
Built 1931-34	700,000
Requirements 1934-41	1,150,000-1,255,000

It is evident, therefore, that nothing less than the erection of 1,000,000 houses during the next seven years would meet the situation and then only if they were all built to let at rents averaging not more than 10/- to 11/- per week. There should be no danger of exceeding either the needs or the potential demand if the rate of building amounted to 200,000 annually, provided that at least half were built to let at rents averaging 10/- per week and not less than 50,000 dwellings were destroyed annually.

Number in Relation to Size and Rental

The extreme importance of the provision regarding level of rents is not always sufficiently emphasized in estimates of housing requirements. No number of millions of houses would satisfy working-class demand if they were not built to let, and at low rents, until the saturation of demand had given rise to conditions of over-supply and a wholesale fall in values. That is one solution to the problem, but the inevitable capital loss involved makes it an undesirable one, both from the individual and from the national point of view.

Little information is available in this country regarding the average level of family wages and the proportionate division of families by wage groups. In its absence the best guide is the information existing in respect of individual earnings. The best available figures are those for a number of industries, excluding the low-paid occupations of coal mining and agricultural labour, relating to the week ended October 24th, 1931.¹ These figures cover male workers only, to the number of 2,759,548. If it were possible to assume that each male wage-earner were supporting unaided one family, these figures would give a direct clue to the proportionate distribution of families according to rent paying ability. In fact, that assumption would not always be valid in practice, though no exact statement of this position can be made. On the one hand, the proportion of families depending entirely on the earnings of a single wage-earner is probably small, though not inconsiderable. On the other hand, families containing two males, or even a man and woman, earning at full rates are likely to be exceptional. In the intermediate class is the great mass of working-class families whose members, other than the principal wage-earner, contribute something, if little, to the family income. On the whole, the proportionate contribution might be expected to diminish for the higher wage groups, as there is less incentive for the wife to find work or to put the children into employment at the earliest possible opportunity in the blind alley juvenile jobs which are relatively well paid.

¹ See Ministry of Labour Gazette, 1933, pages, 8, 45, & 2.

A column has been added to the following table showing the rent within the capacity of each group of male wage-earners on the assumption that in each case the male wage-earner is the only contributor to the family income. In fact this assumption would need modification to allow for additional earnings by other members of the family, but in the absence of reliable data we have hesitated to adopt any average figure. In any case, we are not primarily concerned with the average, but with the undoubtedly large class where joint family income is low, which is likely to result where there is only one wage-earner. The appropriate rent is calculated on the principle that no family can afford to spend more than one-fifth of its income on accommodation without stinting itself in some other essential.

Earnings per week of Principal Male Wage-earner	Percentage of Male Wage-earners in each group	Maximum Appropriate Rent for each group
Less than 40/-	0.4	Under 8/-
40/- to 45/-	1.3	8/- to 9/-
45/- to 50/-	8.0	9/- to 10/-
50/- to 55/-	43.8	10/- to 11/-
55/- to 60/-	27.5	11/- to 12/-
60/- to 65/-	8.4	12/- to 13/-
65/- to 70/-	8.4	13/- to 14/-
Over 70/-	2.2	Over 14/-
	100.0 (covering 2,759,584 male workers)	

These figures can be taken as nothing more than a rough indication of the proportionate housing requirements in respect of rent, of a representative sample of workers in other than the worst paid occupations. If agricultural labourers and other low paid workers were included, the "under 40/-" and the "40/- to 50/-" classes would be enormously swollen. There are, moreover, the considerations that one-fifth of the family income is a high proportion to demand for rent in the case of the lowest paid workers, and that earnings have possibly been reduced since 1931, with the decline in wage rates, in spite of decreasing unemployment.

Requirements with regard to Size

In order to reduce the risk, and waste, of empties through the provision of unsuitable houses, it is also essential to know what future requirements are likely to be in respect of size. While the abnormal increase in the number of families during the last decade, and the probable further increase in the next with the abatement of overcrowding, has greatly added to the number of separate dwellings required, a decline in the average size of families would, on the whole, seem to have modified considerably the size of the dwellings required, compared with the needs of past generations. In the following table the distribution of private families—or families requiring separate dwellings as calculated above—is shown for the 1921 and 1931 Census and the series continued for future years on the assumption that the proportionate distribution of the 1931 Census is maintained, having regard to probable future trends in the aggregate population.

ESTIMATED DISTRIBUTION OF PRIVATE FAMILIES OF VARIOUS SIZES
(in thousands)

	2 or more	2 or 3	4, 5 or 6	7 or more
1921	8,212	3,371	3,657	1,184
1931	9,544	4,700	3,999	845
1936	9,823	4,837	4,115	871
1941	10,055	4,951	4,212	892
1946	10,233	5,039	4,287	907
1951	10,174	5,010	4,262	902
1956	9,995	4,922	4,187	886

On the basis of these figures, it would seem that the needs of the next twenty years will require the erection of a very substantial proportion of the smaller type of dwelling—the two bedroom type required to house a family of not more than three persons. According to the figures reproduced above, nearly 50 per cent of families requiring separate dwellings in 1931 could be included in this category, and no allowance has been made in future years for the continuance of the tendency towards smaller families which was so marked in the period 1921-1931.

IV. SURVEY OF COSTS AND FINANCE

(I) COSTS

It is the object of this survey to ascertain the possibilities of building working-class houses to let at an economic rent which an unskilled worker can afford

In a problem where so many of the quantities are variable, it is necessary to assume certain fixed points from which the calculation can begin. The ensuing data will, therefore, be concerned mainly with one type of accommodation, houses or cottages, to the exclusion of bungalows and flats or tenements. For practical purposes, as will be seen later, this will result in the limitation of the scope of the discussion to suburban housing where land is neither sufficiently cheap to permit the erection of bungalows, which require greater ground area per unit of accommodation, nor so dear as to demand the minimisation of land costs by building to a height.

This limitation also enables a basic standard to be adopted—the three bedroom non-parlour (A8 type) house, of floor area 760 square feet and built at a density of 12 to the acre, as laid down by the Tudor Walters report in 1918 and the Manuals issued by the Ministry of Health in 1919 and 1927. It is fully realised that the floor space specified may be larger than is always necessary, and attention has been given to designs such as the Building Centre Cottages, which have a floor space of 600 square feet, but this question has been discussed in dealing with Standards¹ and the Ministry figure may, at any rate, be taken as a basis. Should a smaller space prove to be not undesirable, this will leave a certain margin for further economy in construction, which will facilitate the task of equalising costs with the maximum rent payable.

A density of not more than 12 per acre is normally provided for in the Town Planning Acts. Any smaller density must be ruled out as impracticable. Greater densities may, on the other hand, well prove economically necessary, and even justifiable on all grounds with suitable designs and planning, but every effort must be made to avoid the mistake of merely creating new slums in place of the old, which is the criticism usually advanced when any attempt is made to increase density.

The maximum rent aimed at in this Report has been fixed at 10/- per week inclusive of rates. Although, in a few cases, this has been achieved under existing conditions without subsidy, it is, on the one hand, sufficiently below the present average level to make its general achievement dependent on a considerable improvement in the existing standards of efficiency and costs, while on the other hand, even though it may be found desirable to reduce rents to a lower level, this figure is, at any rate, within the capacity of the incomes of the majority of working-class families.

Analysis of Items Composing Inclusive Rent Charge

Inclusive rent is composed of a number of items of widely different weight in the total.

- (1) Interest Charges on Capital Cost
- (2) Sinking Fund Charges on Capital Cost
- (3) Rates, including Water Rate.
- (4) Running Costs, including
 - (a) Repairs,
 - (b) Insurance, against fire and sometimes property owners' liability,
 - (c) Allowance for defaults and unlet houses,
 - (d) Management, including rent collection,

Interest Charges

Interest charges are far and away the most important components of rent. Their incidence upon inclusive rents is governed not merely by the size of the original outlay, on which they represent the return, but also by the rate of return that is expected.

¹ See pp. 39-40

The following table shows the weekly payments necessary to produce an annual return varying between 3 and 5 per cent on capital sums varying between £250 and £400, without amortisation.

Rate of Interest	Amount payable per week on a capital sum of			
	£250 s d	£300 s d	£350 s d	£400 s d
3%	2 10	3 6	4 0	4 7
3½%	3 4	4 0½	4 8	5 4½
4%	3 10	4 7	5 4	6 2
4½%	4 4	5 1½	6 1	6 11½
5%	4 10	5 8	6 9	7 9

A variation of one-half per cent in the rate of interest, therefore, makes a difference in the rent of 6d per week on an initial cost of £300, 8d on £350, and 9½d on £400. The importance of economical building, coupled with cheap finance, is illustrated by the fact that a 5 per cent return on a £400 house would burden the weekly rent to the extent of 7/9, while the weekly charge necessary to bring in a 3 per cent return on a £300 house is less than half that figure—3/6. Put in another way, if the weekly charge on account of interest is fixed at 5/-, every saving of one-half per cent in the rate at which capital can be borrowed enables the initial outlay to be increased by a sum varying between £28 and £62, and averaging £44 for the range of interest rates given.

Initial Capital Outlay	Rate of Interest	Interest per Week s d
£438	3%	5 0
£371	3½%	5 0
£325	4%	5 0
£288	4½%	5 0
£260	5%	5 0

The minimisation of rent charges through the reduction of building costs, and hence of total capital expenditure, is essentially a task which can be achieved only by the building industry itself but a very important contribution can obviously be made by taking advantage of the cheapest form of financing available. This explains adequately why only the fringe of the working-class housing problem has been touched by speculative building—meaning, thereby, building which is entered into primarily with a view to obtaining the maximum private profit. Funds employed in this type of enterprise usually demand a return on capital relatively so high that, assuming always the standards laid down above, a rent below the maximum of 10/- to 11/- becomes uneconomic.

One of the primary conditions necessary to enable rents to be reduced is, therefore, ability to borrow at the lowest possible rate. In other words, the speculative element, as understood at present, must be removed from building.

The return at present expected on speculative houses appears to be about 10 per cent at the least. With building costs at their present level of £290-£300, capital charges alone at this rate would demand a weekly exclusive rent of about 11/-, bringing the inclusive rent far above the maximum aimed at before allowing anything at all for rates or running costs. It should be observed that it is commonly held that the speculative builder usually obtains his profit on the land rather than on the building.

This statement needs modification to the extent that the market for artisan and middle-class housing in, say, the £500 to £1,000 range is becoming increasingly saturated. This we believe to be the case at the present time, and, for this reason, organisations which have been successfully supplying such houses on a large scale may tend to turn to the supply of accommodation of lower capital cost, even though the return may be less. But we are of the opinion generally that despite the erection of 207,889 houses in 1933-34, private enterprise is not capable of playing the full part intended without a much greater measure of organisation in the industry as a whole than it at present possesses.

The Trend of Interest Rates

The factors that govern the level of interest rates are several and difficult to assess individually, but they are all connected indirectly with the current relation between the supply of, and demand for, money. A general relationship also exists between the yield expected in different types of enterprise, which varies roughly in accordance with the degree of risk and uncertainty felt to be inherent in the project. The yield on Government securities, as being the safest form of investment, is the common denominator, and has been steadily falling during the last three years.

MONTHLY AVERAGE YIELD ON 3½ PER CENT CONVERSION LOAN

		<i>Per Cent</i>	
1981			4 48
1982			3 92
1983			3 58
1984			
Jan	3 43	June	3 39
Feb	3 41	July	3 29
Mar	3 84	Aug	3 29
April	3 32	Sept	3 26
May	3 85		

The continuation of this trend, or the absence of a reversal, would depend, other things being equal, on the extent to which the demand for industrial capital and confidence in the recovery of industrial earnings remains at a low ebb. General indications show, however, that other things may not be entirely equal.

The high rates of interest which the country came to regard as "normal" during the decade following the War were largely the outcome of the enormous volume of Floating and Unfunded Debt which required frequent refinancing. The Treasury was, in fact, competing with other borrowers in its efforts to cover large and frequent maturities, and the result was a high interest rate which had repercussions in a far wider sphere than the field of working-class housing alone. Conversion operations have removed the shadow of this mass of floating debt from the capital market, and in the absence of any further large maturities before 1940, competition for funds by the Treasury is not likely to recur.

It would be unwise to conclude that interest rates will not, therefore, rise during the next ten years, but there is some reason to suppose that the factors likely to induce a rise will be confined to forces connected with trade recovery—revival in industrial earnings and the demand for industrial capital, revival of overseas investment and reflation of the volume of commercial bills through a recovery in international trade. The last factor is important, in that the demand for gilt-edged stocks, and hence the depression of interest rates, has been very substantially augmented from funds which would normally find employment in the now stagnant bill market. This, moreover, may be a fairly permanent phenomenon, since the reduction in the floating debt has contracted the outstanding volume of Treasury Bills—one of the most important forms of short-term security.

While, therefore, there are reasons for supposing that a more prolonged period of cheap money than was considered normal in the past decade may be anticipated, it is improbable that the rates ruling at the present time will remain indefinitely. If advantage is to be taken of the low interest rates at present prevailing, which are vital to cheap housing, it would be folly not to make an early move.

Many programmes of housing construction on a national scale that have been advanced have not penetrated much further into the field of finance than to indicate that the requisite number of millions should be raised under Treasury guarantee at a rate around 3 per cent. Since the attitude of the Treasury has been consistently opposed to any guarantee of housing loans, such proposals have, in the past, been rather far removed from practical politics. As long as there was a large volume of re-financing to be undertaken at disadvantageous moments, there was a great deal of justification for the Treasury's refusal. Since that particular problem has been removed, a guarantee by the Government may be said to have definitely entered the field of practical finance, though the Treasury's continued reluctance to commit itself to a policy which introduces any element of uncertainty concerning its future liabilities is understandable. Little gratitude has, in fact, been shown, where much was due, for the indirect contribution of the Treasury to the housing problem through its policy of reducing the burden of the National Debt, which, incidentally, led to the general fall in interest rates. It is not to be denied that a Treasury guarantee, whether the outcome of political pressure or of a change of heart, would probably save one-half per cent on interest charges and, as such, would be gratefully accepted as a factor in cost reduction. On the other hand, we believe that private enterprise, if radically re-organised, can be made to meet the building shortage on the basis of existing interest rates, and that any condemnation of unassisted private enterprise would be premature.

At the present time, as has already been pointed out, the rate of return demanded by speculative builders in general is still too high to permit the erection of working-class dwellings of the required standard by them. Our attention has been drawn, on the other hand, to some examples of speculative building where the houses are, in fact, being let at extremely low rents, we cannot, however, see how this is being achieved without the introduction, at some point, of a substantial element of philanthropy, in which case the term speculative should not strictly apply; or without the omission of some item of

costs which ought to be allowed for, such as an adequate sinking fund. Where a gap at present exists in housing construction is between the extremes of speculation, which demands a high return, and Government subsidisation, which is prepared to suffer a loss. Here, there would seem to be an opportunity for a strong organisation to take advantage of the low interest rates at present ruling for sound industrial borrowers. The importance that housing has attained in the public eye, and the public's increasing sense of its responsibilities in this direction, present a favourable psychological background against which such an organisation, if strongly backed, might be able to borrow in the neighbourhood of 8½ per cent with the Government's goodwill, if not an actual guarantee.

Sinking Fund Charges

Of scarcely less importance than interest as a factor in inclusive rent charges is the allowance made for amortisation of the capital outlay. Current rates of interest are again an important factor. On the basis of the average yield of gilt-edged securities in 1933, the number of years in which cumulative sinking funds of between 1 and 4 per cent would become effective, are estimated in the following table.

Cumulative Sinking Fund	Number of years for Total Redemption
1%	48
1½%	38
2%	32
2½%	27
3%	24
3½%	21
4%	19

Several considerations enter into the calculation of what is an appropriate rate of amortisation for working-class houses. The Building Societies, under the 1933 Act, require repayment within thirty years, which involves a sinking fund of between 2 and 2½ per cent annually. The Moyne Committee, on the other hand, placed the life of a well-built workman's cottage at 60 years, on which basis sinking fund charges would amount to less than 1 per cent. With this the Amulree Report concurred.

The adoption of any definite amortisation period must, however, depend on the extent to which the conception of "licensed life," put forward in the section on Management, is realised (see p. 123).

On the technical side, it may be assumed that property built by an organisation with a view to retaining ownership throughout the life of the structure, is likely to be more durable than the product of the speculative builder who is more concerned with making a quick profit by immediate sale. Moreover, as the results of research become available, greater durability can probably be achieved. On the other hand, the question of obsolescence must be taken into account. There are distinct disadvantages in the adoption of a long amortisation period in that a rise in the standard of living might result in a high proportion of unlet houses towards the end of the period. In this connection, it is also important that buildings erected should, as far as possible, be designed with a view to easy demolition for rebuilding when they become obsolete. Further advantages exist in a relatively short period of amortisation, with a view to giving added security to shareholders. The adoption of a cumulative sinking fund of 1½ to 2 per cent, resulting in the amortisation of the property within 30 to 40 years, would not, therefore, seem excessive.

The further question then arises of what proportion of the initial capital outlay should be charged with this rate. Assuming that accommodation is built on freehold land, the question of an ultimate reversion of the property does not arise. Land in itself is not a wasting asset, and the creation of new local population centres with their attendant shops and amenities will probably lead to an enhancement of the value of the land employed above its original purchase price. In these circumstances, it would appear to be a sound proposition to base amortisation charges on building costs only. The question does not assume a vital importance where the cost of land is relatively low, but in urban areas where sites are expensive, it may well become a serious factor.

Building Costs

The terms on which finance can be arranged will, it has been seen, play an important part in determining the capital outlay available per unit of accommodation. The next step is to ascertain as far as possible the existing cost of the minimum standard of house. From this it will then be possible to determine the incidence on inclusive rents of building costs at the rates of interest and amortisation.

discussed above, and the degree to which building costs must be reduced in order to make any given scheme economic

The Ministry of Health publishes monthly returns of the average price at which building contracts are placed, or direct labour schemes initiated, for houses of the non-parlour type. Since the average size of house varies, no satisfactory figure for cost per house can be ascertained, but the accompanying returns of the average area of the houses constructed enables a rough figure to be obtained for the unit cost per square foot. This has been definitely reduced within the past three years, and is now around or below 8/-

AVERAGE BUILDING COST PER SQUARE FOOT OF NON-PARLOUR HOUSES, 1981-84
(ENGLAND AND WALES)

Month	1981			1982			1983			1984		
	Average Cost	Average Area	Cost per sq ft.	Average Cost	Average Area	Cost per sq ft.	Average Cost	Average Area	Cost per sq ft.	Average Cost	Average Area	Cost per sq ft.
January	£ 845	sq ft 781	s d 8 10	£ 884	sq ft 754	s d 8 10½	£ 801	sq ft 782	s d 8 2½	£ 294	sq ft 705	s d 8 4
February	886	754	8 11	814	721	8 8½	294	785	8 0	278	688	8 1½
March	849	761	9 2	804	729	8 4	287	727	7 10½	285	742	7 8
April	842	775	8 10	818	750	8 2½	286	722	7 11	290	726	8 0
May	828	746	8 7	809	741	8 4	280	726	7 8½	292	724	8 0½
June	882	775	8 7	815	782	8 7½	289	784	7 10½	294	780	8 0½
July	882	760	8 9	298	718	8 2	298	741	8 0½	295	722	8 2½
August	882	758	9 10	298	786	8 1	295	782	8 1	284	721	7 10½
September	885	756	8 10½	295	781	8 1	281	718	7 10½	292	734	7 11½
October	882	744	8 11	802	782	8 8	294	727	8 1	—	—	—
November	825	788	8 9½	298	789	8 1	801	782	8 2½	—	—	—
December	828	744	8 8	296	785	8 0½	298	729	8 2	—	—	—

Applying unit-costs varying between 7/10 and 8/4 per square foot, the following results are obtained for the building cost of a minimum standard house of 760 square feet

Cost per sq ft	Cost per house of 760 sq ft
s d 7 10	£297½
7 11	£301
8 0	£304
8 1	£307
8 2	£310
8 8	£318½
8 4	£316½

The average price at which tenders were let or direct labour schemes approved on Local Authority Housing during the year 1983-84 was, according to the Ministry of Health, £289, having fallen to that figure from £301 in 1982-83. This average covers all non-parlour houses of whatever size. In the quarter ended June 1983 the average had fallen as low as £285, and £286 was recorded for the March quarter of 1984.

The following table illustrates well the tendency towards cheaper building in 1982-83 and 1983-84. All the lower cost categories, up to £300, show an increase over the previous year, while there has been a marked decline in the number of houses costing more than £300.

ORDINARY NON-PARLOUR DWELLINGS FOR WHICH ESTIMATES OR TENDERS WERE APPROVED BY THE
MINISTRY OF HEALTH, 1982-83 (ENGLAND AND WALES)

Building Cost	1982-83	1983-84
Below £200 .	2	—
£200-£250 .	1,184	2,280
£250-£270 .	2,873	5,020
£270-£280 .	2,739	5,648
£280-£290 .	6,170	6,002
£290-£300 .	8,041	8,774
Total below £300	21,509	27,724
Per Cent	51.0	71.5
£300-£310 .	7,570	5,742
£310-£320 .	5,610	2,699
£320-£330 .	8,521	1,518
Above £330 .	3,885	1,076
Total above £300	20,586	11,087
Per Cent .	49.0	28.5
TOTAL . . .	42,047	38,761

Many of the lower-cost houses were undoubtedly of less than the standard adopted in this Report as a basis, and the cost of a house of 760 square feet area would not, on the basis of a cost per square foot of slightly under 8/-, have fallen below the £290-£300 class

In contrast to these figures, many houses of a satisfactory type have undoubtedly been built for less. Unfortunately, detailed cost statistics for the building industry are rare—non-existent in the case of speculative building, and only occasionally available in a collated form in the records of Municipal Authorities and Public Utility Societies. The following figures give a sample of building costs returned by certain municipalities during the last three years

COST OF FOUR-ROOM HOUSES* (8 BED, NON-PARLOUR)

Year	Place	Floor Area sq ft	Building Costs £	Land £	Other £	Total £
1981	Liverpool .	710	317	—	—	—
	Nottingham .	722	296	—	—	—
1982	Leadgate (17 per acre)	680	275	7	29	311
	Liverpool	—	322	—	—	—
	Birmingham	—	840	—	—	—
	Penzance	—	298	—	—	—
1982-83	Stourbridge (11 per acre)	760	312	11	38	361
	Newcastle .	760	318 to 328	—	—	—
1983	Newcastle .	760	298	—	—	—
	Newcastle .	720	290 to 312	—	—	—
	Middlesbrough .	—	269 to 276	—	—	—
	Manchester	770	298	—	—	—

* Owing to the absence of published returns, detailed information on this subject can only be obtained for isolated examples by individual research

These again reveal a certain tendency towards reduction, the north-east coast in particular providing examples of cheap construction. A more detailed analysis is available for certain housing estates erected in South Shields in 1982-83. The area in this case was below the basis adopted in this Report, but the cost of building remained extremely low by comparison with other districts

COST OF THREE-BED, NON-PARLOUR HOUSES IN SOUTH SHIELDS 1982-83

Estate	No of Houses	Superficial Area sq ft	Building Cost £	Land Charges £	Streets and Sewers £	TOTAL £
Stanley Terrace	86	675	266	48	16	325
Per Cent	—	—	82 0	13 0	5 0	—
Dean Road, Tyne Dock	108	675	260	32	80	322
Per Cent	—	—	81 0	10 0	9 0	—
Egerton Road	74	675	285	84	26	295
Per Cent	—	—	80 0	12 0	8 0	—
Green Lane	28	675	286	18	15	269
Per Cent	—	—	88 0	6 0	6 0	—

The general evidence points to an average cost in the early part of 1984 for minimum standard houses, under fairly favourable conditions of situation and efficient management, of £290-£300. Since building costs are by no means uniform throughout the country, cheaper results have been achieved in some cases.

The extent of the divergence is shown by the following figures issued by the Ministry of Health with reference to houses included in contracts let and in direct labour schemes commenced during August 1984 by Local Authorities other than the L.C.C.

AVERAGE COST OF A8 HOUSES IN VARIOUS AREAS, AUGUST 1984
(Building Cost includes paths, drains and fences)

District	No. of Houses	Average Cost per House £	Average Area sq ft	Average Cost per sq ft of area s d
London, Hertford and Middlesex	146	312	757	8 8
S Midlands, Berks, Bucks and Eastern Counties	92	303	758	8 0
Wales, Welsh Border and Stafford N. and E. Midlands, Yorks. (E and W. Ridings).	541	285	748	7 7½
S W Coast and N E. Coast	74	295	750	7 10½
N W. Coast	408	268	742	7 2½
Southern and Western Counties	220	288	744	7 8½
	209	302	727	8 3½

An average of £290 to £300 undoubtedly represents an appreciable reduction from the level ruling in 1981 and 1982. Whether these prices could be repeated to-day, or whether the decline may be expected to persist, is another matter. Houses completed early in 1984 were probably, contracted for at least a year previously when the slump was still very serious. Generally speaking, the building materials industries are organised into stronger units than the builders themselves, for whom materials form a large proportion of total costs. The effects of a sudden boom in house building are, therefore, not unlikely to be felt in the form of increased material costs.

Experience of the building boom of 1923-26, when the number of houses built annually rose from 79,000 to 197,000, certainly points to this conclusion, for the cost of A8 houses rose in that period from £350 to £442, according to the Ministry of Health returns.

It is true that there was, during this period, a rise in building wages of about 10 per cent. As labour costs, however, normally constitute one-third or less of the total building cost, the direct increase in the cost of building due to the rise in wage rates, should not have amounted to more than £12 on the 1923 price level. In fact, the total increase was £92, indicating a probable rise of material costs of £80, or, assuming that they contributed two-thirds of the total cost, of 33 per cent on material costs in 1923. We find it difficult to believe that labour costs in the materials industries rose to such an extent in 1923-26 as to necessitate a 33 per cent advance in the price of materials during that period. The repetition of the experience of 1923-26 every time an expansion of demand materialised, would,

without doubt, seriously prejudice the prospects of providing any quantity of working-class accommodation without subsidy. The additional bargaining power resultant on centralised purchasing by a large building organisation, would be a powerful influence in the direction of economy on a large scheme.

An examination of the division of cost between materials and labour reveals the predominating influence of the cost of materials on the building cost of working-class houses. The following table for three-apartment houses in Gateshead gives the proportion as 76.4 per cent, of which two-thirds were accounted for by bricks and timber.

COST OF THREE-APARTMENT HOUSE (GATESHEAD) 1933

Materials	Materials Cost			Materials Cost as per cent of total cost (excluding services)	Wages			Insurance		
	£	s	d		£	s	d	£	s	d
Excavation and Concrete	9	16	0	2.7	4	0	0	8	2	
Drainage	4	2	0	1.4	2	18	0	8	2	
Bricklayer	69	9	5	25.0	23	10	0	14	8	
Carpenter and Joiner	74	16	11	26.5	9	0	0	4	7	
Plumber	30	0	0	10.8	3	4	8	3	1	
Tiles	16	3	11	5.8	3	10	6	8	2	
Plasterers	8	10	8	2.9	8	10	11	4	9	
Painter and Glazier	8	15	10	1.4	5	6	7	3	2	
TOTAL	216	14	9	76.4	60	0	8	1	19	4

Services Electricity (lighting) and Gas (cooker and boiler) £12 0 0

TOTAL COST £290 16 0

Slight variations would be expected in different areas and for different-sized dwellings of the same category, but the general conclusion as to the high proportionate cost of materials would probably not be invalidated. There is, moreover, the difficulty of exact definition of materials. The builder who makes his own windows and doors would commonly discriminate between the cost of labour and material used by him, for the man who buys them ready made, no such discrimination is usual or possible.

The Gateshead analysis, incidentally, agrees closely with a very complete, though unfortunately now somewhat out-of-date, investigation made by Mr Price Davies in 1928 ("Price Estimating for Building and Public Works"). In his estimate, materials accounted for 68 per cent of the total building cost of three-room parlour cottages.

ANALYSIS OF COSTS OF THREE-ROOM PARLOUR COTTAGES

- (1) Labour, 82 per cent
- (2) Materials, 68 per cent

	Per Cent
(1) Labour.	
Excavators and general labourers	36 6
Bricklayers	16 0
Slaters	1 7
Carpenters and joiners	15 7
Plasterers	9 0
Plumbers and gas fitters	4 7
Painters and decorators	6 8
Glaziers	0 3
Foreman and timekeeper	3 7
Watchman	2 3
Builder and clerk	3 7
	100 0
(2) Materials	
Aggregate	2 8
Bricks	18 6
Cement	3 1
Concrete Mat	2 5
Drain Pipes	1 8
Grates and Ranges	2 6
Gutters and Down Pipes	1 8
Hardware Goods	4 5
Joinery	15 4
Lead	8 1
Slates	12 8
Timber	13 9
	82 4
Others	17 6
	100 0

Two further estimates follow, which once again accentuate the predominance of bricklayers' time and materials. The first relates to a pair of Standard Cottages (three-bedroom non-parlour type) of area approximately 600 square feet, priced for the Sheffield District, the second to a pair of bungalows of the two-bedroom type.

SUMMARY OF ESTIMATE FOR PAIR OF STANDARD COTTAGES (SHEFFIELD DISTRICT) 1934

	£ s d	Per Cent
Preliminary Items	5 14 6	1 2
Excavator and Concrete	81 9 4	6 4
Drains	12 18 0	2 6
Bricklayers	187 7 8	38 8
Tiles	34 16 9	7 2
Carpenter and Joiner	92 13 0	18 9
Ironmonger	6 14 0	1 4
Founder and Smith	29 16 0	6 1
Plasterer	28 15 7	5 6
Plumber and Fitter	35 16 1	7 4
Glazier	3 16 1	0 8
Painter	19 18 10	4 1
TOTAL	£489 15 9	100 0

SUMMARY OF ESTIMATE FOR PAIR OF SEMI-DETACHED BUNGALOWS (SHEFFIELD DISTRICT) 1934

	£ s d	Per Cent
Preliminary Items	5 12 0	1 8
Excavator and Concrete	85 15 4	8 0
Drains	10 7 2	2 8
Bricklayers	148 18 4	32 2
Tiles	48 16 6	11 1
Carpenter and Joiner	88 19 4	20 1
Ironmonger	6 7 0	1 4
Founder and Smith	29 6 6	6 6
Plasterer	20 19 8	4 7
Plumber and Fitter	35 4 0	8 0
Glazier	8 9 2	0 8
Painter	15 9 1	3 4
TOTAL	£441 4 1	100 0

From these estimates it is evident that the achievement of the more economical purchase of bricks alone would be an important step in the direction of lower building costs

Rates

Although building costs vary widely according to district, it is possible to arrive at some conclusion regarding their average level and trend. The same cannot be said of rate charges which are subject to almost infinite variation throughout the country.

There is, in fact, a good case for omitting rates from calculations of rents for the reason that they are a factor beyond the control of the builder except in so far as he is able to discriminate between different areas before erecting houses. Their inclusion would logically demand the inclusion of other compulsory items in inclusive rents in the broadest sense, such as lighting and heating and particularly cost of transport to and from work. Since, however, rates are commonly collected by the landlord of working-class houses together with the rent, and since they constitute such an important part of inclusive rents, we have felt that it would be unwise to omit them from consideration.

Two factors enter into the calculation—the assessment placed upon the property and the poundage levied on that assessment. A high rate of assessment combined with low poundage results, therefore, in much the same charge as a low assessment with a high poundage. Some Local Authorities who advertise a low poundage within their jurisdiction, in fact, levy a fairly high effective rate by making a high assessment. The converse is not, however, always applicable. In practice a high poundage usually denotes local financial stringency and tends to be accompanied by stricter assessment than in districts where the pressure to raise revenue is not so great and the poundage charge accordingly less. Standardisation of methods of assessment throughout the country would be the ideal solution, but the difficulties are too great to hold out any immediate hopes of realisation.

Rateable value is arrived at by a calculation of Gross Value—the rent which a tenant could reasonably be expected to pay, less an allowance for repairs.

Generally speaking the type of property under consideration might be expected to be assessed in the provinces at anything between £10 and £18 annually, and in London up to £20, while the rate in areas suitable for housing development would not be likely to be less than 11/- in the £ and might, in suburban areas bordering on depressed areas, be more. Expressed as an average for the whole country, local rates fell from 12/5½ in the £ in 1929, to 10/10 in the £ in 1933, and 10/9½ in 1934. This average, however, involves the inclusion, at one end of the scale, of agricultural parishes with rates below 5/- (though the assumption that rates in all agricultural areas are necessarily low is a false one) and, at the other end, of rates approaching 20/- in the £ in the depressed areas such as the Durham coalfields and, notably, Wales. As a large scale housing organisation would obviously refrain from putting up large estates either in the heart of rural areas or round industrial centres which appear to be fated to suffer a permanent decline, it is the intermediate section which is of the greatest practical interest. Since building during the next ten years will be concerned in no small degree in providing for future demands and since there is already a significant internal migration of population, there is likely to be a tendency to choose, for large-scale housing schemes, those areas which seem to enjoy permanent or increasing industrial prospects.

The following tables are of some interest in that they show how wide a selection of areas is available where rates are not excessive.

NUMBER OF ADMINISTRATIVE COUNTIES AND COUNTY BOROUGHES LEVYING VARIOUS RATES IN THE £ 1988-84

	Under 10/-	10/- to 11/-	11/- to 12/-	12/- to 13/-	13/- to 14/-	14/- to 15/-	15/- to 16/-	16/- to 17/-	Over 17/-
<i>Administrative Counties</i>									
England	17	14	10	6	—	2	1	—	—
Wales	1	1	—	—	3	4	—	—	8
<i>County Boroughs</i>									
England	12	10	11	9	9	5	11	4	7
Wales	—	—	—	2	—	—	1	—	1

The second table continues this analysis in more detail by discriminating between the various types of local authority and illustrates the divergence between urban and rural rates

COMPARISON OF RATES LEVIED OR LEVIABLE BY 1,724 LOCAL AUTHORITIES IN URBAN AND RURAL AREAS, 1933-34 (ENGLAND AND WALES)

	Under 10/-	10/- to 12/-	12/- to 14/-	14/- to 16/-	16/- to 18/-	Over 18/-
Metropolitan Boroughs	18	9	4	2	1	—
County Boroughs	12	21	20	17	9	4
Other Boroughs and other Urban Districts	246	362	240	98	41	80
All Urban Areas	271	392	264	112	51	84
General Rate leviable in Rural Districts	426	94	51	23	5	1

Some assumption must be made with regard to rates in order to arrive at an inclusive rent. We believe the adoption of £12/- as the average rateable value, and 11/- as the average poundage, to be adequate, giving an annual charge of £6/12/- or rather more than 2/6 per week. While the poundage adopted may be open to criticism as being on the low side for certain areas† there is some margin for variation in the adoption of a rateable value as high as £12/- . The same weekly charge would result from any of the following combinations of assessment and poundage

Rateable Value	Rates in the £
18 0 0	10 0
12 10 0	10 7
12 0 0	11 0
11 10 0	11 6
11 0 0	12 0
10 10 0	12 7
10 0 0	13 2

As water rates are generally collected by the landlord, together with the local rate, a further allowance must be added on this account. The Metropolitan Water Board's rate is levied at 6 per cent of the rateable value of the property. We have adopted an average of 5 per cent which, on £12 rateable value, brings inclusive rate charges up to £7/4/- or 2/9 per week.

In certain areas, additional rates are levied, generally for the purposes of drainage in fen counties, or, over very limited areas, for upkeep of local amenities. These are not common, and may safely be ignored.

Running Costs

Running costs include a number of items under the heading of maintenance and management. Many authorities in practice express allowances for repairs as a percentage of rent, and the May Committee in 1931 adopted this method. There has been a later tendency, however, to reject

† The position of depressed areas with exceptionally high rates is discussed under "Rates" at a later stage (see page 138)

this method on the grounds that rents are not fixed on the basis of cost of fabric alone, but with an eye on amenities and design. Accordingly the Ray Committee on Local Expenditure (1932) and the Moyne Committee (1938) adopt the method of estimating a fixed sum. The allowance made in each case was about £5/10/0 per annum or 2/1 per week.

There is good reason to believe that this figure could be reduced on a large estate by the use of a permanent repair gang. This method has been employed on the Imperial Chemical Industries' Estate at Billingham with remarkable results. The estate consists of 1,158 parlour and 548 non-parlour houses, and in 1938 the total outlay on repairs was only £5,898, which works out at under £3/10/- per house, irrespective of type, and in this case a regular maintenance gang of 28 employees is kept at work, with the addition of 8 painters in the summer months. The cost of repairs and insurance combined was reduced to a proportion as low as 0.28 per cent of the original capital cost in 1929, the highest proportion experienced being 1.09 per cent in 1932. It would not, therefore, appear over-optimistic to charge repairs on a large estate with a regular repair gang at £3/10/- per annum.

Insurance in most cases is taken out to cover damage by fire and in some cases property owners' liability. The annual charge on this account may be placed at 4/-.

Some allowance must be made for defaults on rent payments and houses standing unlet. The incidence of the latter, as has already been indicated, is likely to grow greater with time, and the risk, is covered to some extent if a relatively short amortisation period is adopted. There is, always, however, some risk of vacancies between tenants which an additional allowance of 1 per cent on rent or about 6/- per year would probably cover.

The adoption of so low a figure may possibly be the subject of criticism. Our attention has been drawn to the example of an estate of subsidised houses approaching the artisan class standard where the percentage of empties has risen as high as 25 per cent owing to obsolete design. Other estates in the neighbourhood of London have suffered in the same way owing to inaccessibility and the consequent expense of transport. The incidence of these factors can, however, be minimised by attention to design and the choice of locality.

A further item of some importance in running costs, which is sometimes disregarded in estimates of housing estate construction, is the cost of management, of which the principal item is rent collection. This is allowed for at the rate of 4 per cent of rent or about £1/4/- per annum. This figure is possibly high, as the I.C.I. Billingham estate adopts a basis of only £1 per annum, but rents there are subtracted before wages are paid in the case of the company's employees, with a consequent reduction in the cost of collection.

Land and Development

So far no mention has been made of the most variable and one of the most important items of all—land and development. Position, suitability for competing uses and the stage of development, which includes the existence or non-existence of roads and sewers, are the principal variable factors making for wide disparities. No hard and fast estimates of costs on this account can be made, in practice the most suitable sites would have to be selected within the limits of a capital cost pre-determined with regard to all-in costs.

The price of land suitable for housing varies from about £100 per acre for undeveloped agricultural land to £15,000-£20,000 for fully developed land of favourable situation in the centre of highly populated urban districts. A Ministry of Health inquiry in 1930 revealed that 72 per cent of the houses investigated in urban areas bore capital costs other than building costs varying between £50 and £100. The percentage on either side of these limits was about the same—13 per cent below and 15 per cent above.

The average cost of land and development in this case may be taken as £75. The May, Ray and Moyne Committees all adopted a figure of £70 inclusive for site, roads and sewers. The cost of land to the L.C.C. on their various building estates has varied widely, from £75 per house down to £15/16/-, assuming a density of 12 houses to the acre †

Becontree	£225 per acre	£18/15/- per house
St Helier	£400 „	£38/6/8 „
Downham	£190 „	£15/16/8 „
Watling	£540 „	£45/-/- „
Wormholt	£800 „	£75/-/- „

† The density was actually considerably smaller

Land costs in the London area are, however, undoubtedly higher than elsewhere. The analysis quoted earlier for schemes in Gateshead gives a total outlay on land, streets and sewers varying between £62 and £88 per house. In this case the number of houses involved was, however, small. One of the principal difficulties in connection with development costs lies in the fact that very large estates which are desirable on the score of economy for many other reasons, usually require a higher proportionate outlay in site development than smaller or more compact schemes. This is a difficulty which could be minimised by the adoption of improved estate planning.

There is a general impression, however, that costs of land and development in working-class housing have been on the decline and under present conditions it should not be difficult to find sites where this item could be covered by an initial outlay of £60. This figure is probably capable of further reduction in favourable circumstances.

All-in Costs

On the basis of this discussion of the constituent items of inclusive rent, we have set out below an analysis of what we consider to be the minimum all-in cost capable of achievement under conditions prevailing within recent months. The figure adopted for building cost is, therefore, based on the lowest achieved in the most favourable circumstances, that is to say on the North-East coast.

The estimate is for 8 bedroom, non-parlour cottages of 760 square feet, assumed to be part of a scheme of some size. The latter standard we have adopted for convenience rather than from conviction that it is necessarily the desirable minimum. Recent improvements in design have, in fact, shown that a reduction in the minimum area below this figure is not necessarily injurious, and changes in the average size of families discussed on page 50 confirm this impression.

The estimate gives a total capital cost of £320,—£260 for building and £60 for land and development. Both these items we believe to be capable of a sensible reduction, the first by economy in the purchase of materials, the elimination of waste and other factors to be discussed at a later stage, the second by a careful selection of sites and technical improvements in site work. The achievement of land and development costs of less than £60 per house is, in fact, by no means uncommon at the present time. Building at a greater density than 12 to the acre, which is the basic density adopted here, we believe to be not necessarily undesirable on grounds of health and amenity and is in some cases essential on economic grounds. It is nevertheless the maximum density permitted under many town planning schemes and has been adopted for that reason.

MINIMUM COST BASED ON CONDITIONS OF JANUARY-MARCH 1934

<i>Capital Cost—</i>					
Building					£
Land and Development					260
					60
					<u>320</u>
<i>Economic Return—</i>					
Interest at 4 per cent				£	s d
Sinking Fund at 2 per cent (redemption period 80-85 years) on building cost only				12	16 0
				5	4 0
<i>Running Costs</i>					
Repairs, about		8	10	0	
Insurance, about			4	0	
Vacancies and Defaults (1 per cent of rent)			6	0	
Management (4 per cent of rent)		1	4	0	
					5 4 0
<i>Rates—</i>					
Allowed at 11/- in £ on £12 rateable value		6	12	0	
Water Rate at 5 per cent of rateable value			12	0	
					7 4 0
Inclusive Rent, per year				30	8 0
„ per week					11 8

This calculation gives a yearly inclusive rent of £30/8/- or about 11/8 per week—1/8 above the desirable maximum of 10/-. The lower figure could be more closely approached by a number of methods.

It should be possible, in the first place, for a building company operating on a large scale to achieve building costs below the £260 level. If floor space is reduced to 700 square feet, a saving of some £20 is realised on the capital cost, while there is undoubtedly scope for further economy in centralised purchase of materials and the elimination of waste.

Consideration has been given elsewhere to what is the maximum desirable density per acre at which houses should be erected. The density laid down in most town planning schemes for working-class zones is 12 to the acre. While we wish to avoid at all costs any risk of a repetition of the slum evil, we are of the opinion that there are a number of sites with the open country not far away and ample scope for the provision of parks and playgrounds where a density of 16 to the acre would not be detrimental. In districts with fewer outlets, such a density might be less desirable—but it is by no means out of the question universally. Building at a density of 16 to the acre might be expected to result in a lowering of land and development costs from £60 to the neighbourhood of £45.

Consideration has been given earlier in this section, and under the heading of "Interest Charges," to the rate of interest at which capital might be raised. We have there come to the conclusion that a rate of 33 per cent could be achieved in favourable circumstances. If this could be realised it would bring a saving of 7d in weekly rents compared with the cost estimate on p. 68. A longer amortisation period is not wholly out of the question, provided that adequate allowance is made for empties.

Some further economies are probably possible in the less important item of "running costs." Assuming, however, that these and rate charges remain constant, the following tables show the amount of relief that would result from

- (a) lower building costs,
- (b) lower land and development costs,
- (c) lower rates of interest,
- (d) a longer period of amortisation

than those allowed for in the original calculation, assuming in each case that the other factors remain fixed as before.

INTEREST 4%, SINKING FUND 2% (ON BUILDING COST ONLY)

Building Cost Land & Development	£ 260 60	£ 240 60	£ 220 60	£ 260 45	£ 240 45	£ 220 45
Economic Return	£ s d 18 0 0	£ s d 16 16 0	£ s d 15 12 0	£ s d 17 8 0	£ s d 16 4 0	£ s d 15 0 0
Running Costs	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0
Rates	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0
Inclusive Rent						
Per year	30 8 0	29 4 0	28 0 0	29 16 0	28 12 0	27 8 0
Per week	11 8	11 8	10 9	11 5½	11 0	10 6½

Every reduction in all-in capital costs by £20 is equivalent, therefore, other things being equal, to almost 6d per week off rents.

CAPITAL COST £320 (BUILDING £260, LAND AND DEVELOPMENT £60)

Rate of Interest Sinking Fund on Building Cost Land & Development	4% 2%	3½% 2%	3% 2%	4% 1%	3½% 1%	3% 1%
Economic Return	£ s d 18 0 0	£ s d 16 8 0	£ s d 14 16 0	£ s d 15 8 0	£ s d 13 16 0	£ s d 12 4 0
Running Costs	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0	£ s d 5 4 0
Rates	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0	£ s d 7 4 0
Inclusive Rent						
Per year	30 6 0	28 14 0	27 4 0	27 16 0	26 4 0	24 12 0
Per week	11 8	11 0½	10 5½	10 8	10 1	9 5½

Reduction of the interest rate by ½ per cent is equivalent to 7d a week off rents, reduction of the sinking fund by 1 per cent is equivalent to 1/- a week off rents.

In order to see what are the possibilities of a combination of these economies, the following calculation shows one way in which the weekly rent could be reduced to about 10/-.

<i>Building Costs—</i>					
700 square feet floor space at present minimum price					£ 245
Less Economies					15
					<hr/> 230
Land and development at density of 12 houses to the acre					60
					<hr/> £290
<i>All-in Capital Cost</i>					
<i>Economic Return—</i>					
Interest at 8½ per cent on £290	£	s.	d.	£	s
Sinking Fund at 1½ per cent on £280	10	8	0		
	3	9	0	13	12
					0
<i>Running Costs—</i>					
Repairs		8	10	0	
Insurance			4	0	
Vacancies, etc., (raise from 1 per cent to 3 per cent to allow for longer amortisation period)			15	7	
Management (4 per cent of rent)		1	0	9	
					5
					10
					4
<i>Rates—</i>					
Allowed at 11/- in £ on £12 rateable value		6	12	0	
Water Rate at 5 per cent on rateable value			12	0	
					7
					4
					0

ERRATUM

Page 64, line 15, 33 per cent. should be 3½ per cent.

decided merely on economic grounds. Apart from æsthetic considerations, questions of design enter largely into the problem. Generally speaking, bungalow design is more suitable for types requiring one, two or four bedrooms in addition to living room, scullery, bathroom, etc., cottage design of more than one storey for types requiring three or five bedrooms. Terms under which land can be purchased also enter into the calculation. Where it can only be obtained at a price per unit of frontage, economy in the use of the latter demands that buildings should be erected in oblong blocks with the narrow side facing the front and of more than a single storey. Where the land can be obtained by the acre without regard to frontage value, dispersion of the houses is possible, within the limits of development costs, and the bungalow type becomes more practicable. No hard and fast formula can, therefore, be found that will indicate the marginal factors determining the choice of a bungalow or cottage type.

The chief merit as regards cost, of bungalow construction may already have been appreciated from the estimates reproduced on pages 59-60 above—economy in the most expensive item, brickwork for walls, which is not entirely counter-balanced by the increased incidence of two other items, foundations and roofing tiles.

If it may be assumed that questions of æsthetics and design do not enter into the calculations, the price of land at which all-in costs of (a) cottages at 12 per acre of £250 building cost, and (b) bungalows at 8 per acre of £220 building cost, are equal, works out at £360 per acre. If it is possible to build bungalows at a density as great as 10 per acre, cottage building is at a definite disadvantage, as the marginal price of land at which it becomes the more economic method is as high as £1,440 per acre. Development costs per acre are assumed to be the same in each case.

Tenement versus Cottage

Choice between development by cottage or by tenement can, however, be determined more accurately. Experience has generally shown that in blocks above the height of two storeys, the building cost per dwelling begins to rise above what can be achieved for cottages. Tenement buildings beyond four or five storeys, moreover, generally carry increased running costs in the shape of provision and maintenance of lifts, lighting of corridors, etc. The choice of the block type of dwelling is, therefore, governed by land values. Where these are extremely high, as in many slum clearance areas, it is usually the most economic method of housing owing to the greater density per acre of dwellings provided. Given the three items of building costs, development costs, and density of dwellings per

acre for cottages and tenements respectively, it is possible, by use of the formula set out in the Report of the Council for Research on Housing Construction, to calculate the marginal value of land for cottage construction. As, however, tenement design and tenement costs are far less standardised than those for cottages, some latitude must be allowed.

The average building price of non-parlour houses constructed by Local Authorities during the March quarter of 1984, was £286, and for dwellings in buildings of three, or more storeys, £400. Development costs will vary very considerably with different sites. Tenement buildings, although generally erected on developed land, usually require a higher outlay on development, through the necessity of providing various amenities and services, e.g. playgrounds, wash-houses, etc., which are essential if slum clearance is to be more than mere rehousing. For cottage buildings, development costs will probably lie between £300 and £600 per acre, for tenement buildings between £900 and £1,200. Adopting a density of 12 cottages to the acre against 60 for tenement dwellings, the marginal price of land for the two uses works out at between £1,260-£1,560 per acre.

The Council for Research on Housing Construction have worked out an improved design for tenement construction, involving a building cost of £318 for three room dwellings in a five storey block of density 60 to the acre, with an allowance for site-work of £1,200. Comparing this with the cost of £260 per three bedroom cottage at a density of 12 per acre, as was adopted in the cost estimate on page 68 above, with an estimated development cost of £360 per acre, the marginal price of land as between the two types of construction works out at £720 per acre. To build cottages on land at anything like this price would entirely destroy all prospects of letting at an inclusive rent of 10s per week. In fact, on the basis of the estimate of capital costs on page 68, where £80 per house is allowed for land and development combined, unsubsidised cottage building would appear to be impossible on land costing much above £360 per acre, unless development costs are materially reduced.*

* This calculation can be performed for any given costs from the equation

$$\frac{x + b}{c} + a = \frac{x + b'}{c'} + a' \text{ where}$$

a a' = building costs per cottage and per tenement dwelling
 b b' = development costs " " "
 c c' = density per acre " " "
 x then = the marginal price of land for the two users "

(2) FINANCE

Housing Development by Subsidy

The measures by which attempts were made during the fifteen years following the Armistice to cope with the housing problem by subsidisation have already been described in the Section on "Legislation".¹ As a result of these measures 1,177,868 houses were erected at an estimated capital cost of £671,000,000. Local Authorities were responsible for nearly two thirds of the total—756,298 houses, at an estimated cost of £419,000,000, private enterprise for the remainder—421,565 houses, at a cost of £252,000,000.

The following table summarises the results of subsidised building between the Armistice and March 31st, 1984, divided according to the type of local authority responsible, or private enterprise within the jurisdiction of each type of authority.

¹ See above, pages 33-37

TOTAL OF HOUSES COMPLETED AND UNDER CONSTRUCTION UNDER ALL HOUSING ACTS¹ 1919-84

	Completed up to March 31st, 1984	Under construction at 31/3/84 under Acts of 1924 and 1980
<i>London—</i>		
By the L C C ²	50,829	2,111
By the Metropolitan Boroughs	15,381	853
By Private Enterprise	4,925	152
<i>County Boroughs—</i>		
By County Borough Councils	310,827	9,713
By Private Enterprise	113,169	126
<i>Other Boroughs and Urban Districts—</i>		
By Town and Urban D C 's	272,855	7,107
By Private Enterprise	171,188	83
<i>Rural Districts—</i>		
By Rural D C 's	105,842	1,986
By Private Enterprise	132,283	48
<i>Housing Operations of County Councils (other than L C C)—</i>		
By County Councils	1,814	—
TOTAL, By Local Authorities	756,298	21,720
By Private Enterprise	421,565	859
* GRAND TOTAL	1,177,863	22,079

¹ i.e. excluding the new 1988 Act

² Includes houses on L C C. Estates not within the County

N.B.—For tables showing, by quarters, houses built under the Addison, Chamberlain and Wheatley Schemes by Local Authorities and Private Enterprise respectively, see the Amulree Report, pp 45-48

The annual commitments of the Exchequer in respect of houses completed at March 31st, 1984, amount to about £18½ million, made up as follows

Under the Housing Act of 1919	£ 6,600,000
1923	2,475,000
1924	4,289,000
1926	22,000
1980	225,000
	£18,561,000

The commitments under the 1919 and 1923 Acts are subject to no further expansion, work under the 1924 Act, on the other hand, is still continuing and a small addition to the Treasury's obligation will be made when the programme is completed. Further obligations will result from the operation of the 1926 Act (Rural Housing), but the sum involved is not a large one. The 1980 Act, on the other hand, the only piece of subsidy legislation that remains, will involve the Exchequer in additional commitments of some size. Under the speeding-up programme of 1983, the provision within five years of 286,897 new dwellings is looked for under this Act, to supplant 268,457 existing houses in slums with a population of 1,246,556. The capital cost is estimated at £115,000,000 and assuming that the present rate of subsidy continues, the Exchequer's share will probably amount to £3,100,000 on the completion of the scheme.

By 1988-89, therefore, the Treasury will be bearing an annual charge of some £16-17 millions on account of post-war housing. Some relief will come in 1943, when the Chamberlain subsidies, which were only for twenty years, began to fall in. Payment under the most costly Act of all—the Addison Scheme—do not, however, begin to diminish for a further twenty years.

In addition, the cost to Local Authorities must be counted. On the basis of houses completed by March 31st, 1984, the rates will have to bear the burden of an annual charge of about £3,000,000 for a period varying from 20 to 40 years. The liabilities at present in sight in connection with slum clearance are likely to add another million at least.

The following table gives an analysis of the Exchequer contribution since the war

EXCHEQUER CONTRIBUTIONS IN RESPECT OF HOUSING SCHEMES IN ENGLAND AND WALES
Amount of Exchequer Contributions paid in each Financial Year

Financial Year	Housing (Town Planning) etc., Act 1919 £	Housing (Additional Powers) Act 1919 £	Housing etc., Act 1928 £	Housing (Financial Provisions) Act 1924 £	Housing (Rural Workers) Acts 1926 and 1981 £	Housing Act 1980 £	TOTALS £
1919-20	20,844	—	—	—	—	—	20,455
1920-21	568,749	2,528,552	—	—	—	—	3,097,301
1921-22	4,568,942	4,540,424	—	—	—	—	9,109,366
1922-23	7,227,911	2,427,487	—	—	—	—	9,655,398
1923-24	7,850,014	1,698	6,108	—	—	—	7,857,815
1924-25	7,951,582	—	96,665	1,885	—	—	8,050,132
1925-26	7,905,432	—	439,641	88,683	—	—	7,838,756
1926-27	6,953,157	—	948,459	474,428	—	—	8,376,044
1927-28	6,864,817	—	1,509,129	1,167,080	—	—	9,540,976
1928-29	6,827,964	—	1,976,897	1,865,718	—	—	10,669,974
1929-30	6,788,118	—	2,141,089	2,253,087	509	—	11,182,808
1930-31	6,723,699	—	2,621,250	2,523,263	2,594	—	11,875,806
1931-32	6,742,070	—	2,731,051	3,245,955	7,427	5,100	12,731,608
1932-33	6,781,395	—	2,633,567	3,873,297	11,369	50,130	13,349,753
1933-34	6,589,724	—	2,523,650	4,178,750	15,858	125,144	13,482,626
Totals up to 1933-34	89,718,429	9,498,156	17,627,506	19,677,091	37,257	180,874	136,733,818

Unassisted Building

Unassisted building did not, up to the end of 1929, assume as great an importance in working-class housing as assisted building. Since the autumn of 1929, however, the revival in unassisted building has been remarkable, culminating in a state of activity in the first quarter of 1934, approximately four times as great as in the 1928-29 period¹. Eliminating houses of a rateable value of more than £78 (£105 in the Metropolitan area), whose contribution to working-class housing, even indirectly, cannot be held to be very appreciable, unassisted building has contributed 1,150,522 houses since the Armistice, compared with the figure of 1,177,063 for subsidised houses. Figures for the last four years show how largely the burden of providing new houses has passed from subsidised to unassisted initiative².

HOUSE BUILDING BY LOCAL AUTHORITIES AND PRIVATE ENTERPRISE (EXCLUDING SLUM CLEARANCE)
1930-34 (ENGLAND AND WALES)

Half-Year Ending	Local Authorities		Private Enterprise		TOTAL	
	Assisted	Unassisted	Assisted ^a	Unassisted ^a	Assisted	Unassisted
Mar 31st, 1930	24,502	1,605	590	51,788	25,092	53,393
Sept 30th, 1930	24,550	1,860	1,682	55,622	26,232	56,982
Mar 31st, 1931	27,948	2,000	883	69,746	28,831	71,746
Sept 30th, 1931	31,829	1,119	955	60,044	32,784	61,163
Mar 31st, 1932	33,381	1,366	1,331	63,374	34,712	69,740
Sept 30th, 1932	27,885	690	1,306	62,456	29,191	63,146
Mar 31st, 1933	20,644	735	1,121	79,556	21,765	80,291
Sept 30th, 1933	21,097	501	1,269	87,088	22,366	87,589
Mar 31st, 1934	23,745	1,466	1,597	120,781	25,322	122,247

¹ For a table showing assisted and unassisted building by half-years from January 1919 to March 1934, see the Amulree Report, p 50

² Figures for unassisted building divided by Local Authorities and Private Enterprise are not available earlier than 1930.

^a Houses of rateable value not exceeding £78 (or £105 in the Metropolitan Area)

Since the figure for unassisted building includes all houses of a rateable value up to the relatively high level of £78-£105, (working-class houses would seldom carry an assessment of more than £25),

the extent to which unassisted building represents a real contribution to working-class housing depends on (a) the proportion of houses built without subsidy which were of the lower grades, judged by rateable value, (b) the proportion built to let, and (c) the extent to which the process of "filtering up" has led to an increase in the effective supply of working-class houses through the vacation of existing accommodation by tenants able to afford a higher standard

Such scanty information as is available suggests that the contribution must have come mainly from "filtering up". Unfortunately the returns for building by private enterprise did not discriminate between the different categories in respect of rateable value until the second half of 1933-34. The returns for this period show that of 120,781 houses built, 44,754, or 37 per cent, were of a rateable value of £18 or less (£20 in Greater London). The effective value of this contribution to the housing shortage was somewhat reduced, however, by the fact that only 18,014 were built to let. Families of a class that cannot afford more than 10/- per week for rent, are unlikely to be in a position to buy outright. It is, in any case, fairly certain that nothing like this proportion of the cheapest class of houses was supplied by private enterprise prior to the period of reduced building costs, which has only become effective since the beginning of 1938.

Further enquiries on this subject had been made by the Ministry of Health pending the publication of these returns. The first covered a sample of 18,000 houses and was said to reveal that 88 per cent of houses built by private enterprise were of the "C" class (i.e. of under £18-£20 rateable value) and that as many as 19 per cent were for letting. A second inquiry, covering 19,176 houses in 50 areas outside and 15 areas inside Greater London, revealed, again, a proportion of 88 per cent of "C" class houses and a percentage to let of 16. Of the "C" class houses, 19 per cent were to let, the proportion outside London being as high as 85½ per cent.

Other inquiries on the subject of "filtering" showed that in one area the erection of 709 new houses enabled 694 working-class families, in addition to those that moved in, to change their quarters, and that 864 of them definitely improved their position either by moving into better accommodation or by securing it at a reduced rent. It appeared also that 80 per cent of the new houses were taken up by families of the artisan or skilled worker type. Families moving into old houses vacated by tenants rehoused in new property are safeguarded from rent increases by the Rent Restrictions Act of 1938 which prevents houses of the "C" class from becoming decontrolled on falling vacant.

Progress by this method can undoubtedly be accelerated by efficient management. For instance, the effect of circularisation of 800 tenants on two L.C.C. estates suggesting that the occupants were no longer financially in need of subsidised accommodation, led to the evacuation of their houses by 50 per cent of the families addressed. A rather similar effect is achieved by the pooling system now employed by the Leeds Corporation, whereby the subsidies are turned into a common fund, and rents are charged on a differential basis calculated with regard to the paying capacity of the occupants.

Building Societies

With the conclusion of the subsidy era by the 1938 Act, except in the special case of slum clearance, unassisted enterprise must now assume the entire burden of providing new houses. The evidence disclosed above, though more favourable than might have been anticipated, tends to show that a direct attack on the housing problem by the provision of houses at the lowest rentals, is not to be expected, at any rate immediately, from the 1938 Act, largely because, quite apart from the question of profit motive, private enterprise building and finance is not yet organised to provide low cost houses to let on a large scale.

Under the Act, it was intended that the cheapest form of finance available to private enterprise would be that provided by the Building Societies, which have undertaken to advance on mortgage, for thirty years, 90 per cent (instead of a former 70 per cent) of the value of the house, at rates 1 per cent below the normal. There is little doubt that ample funds will be forthcoming from this source, if there is a demand for them. With the passing of the Act, the largest of the Building Societies announced its intention of setting aside immediately £10,000,000 for advances and had already advanced £1,800,000 by the end of 1938. The capital assets of the whole movement are, moreover, £300,000,000.

Some attention has been drawn during the past few years to supposed weaknesses in the position of the Building Societies, arising from the fall of interest rates, the accumulation of surplus funds and lack of mortgages. Such weaknesses would appear to have been exaggerated, probably as a result of the policy of the Societies in refusing to accept the deposit of certain funds that were brought to them. When interest rates began to fall, many Societies realised that they provided an attractive refuge for "bad money," which was liable to sudden withdrawal, and, therefore, unsuitable for employment in

Building Society finance, for this reason a policy of restricting new funds in accordance with needs, and of making no reduction of mortgage standards was adopted. Liabilities to shareholders and depositors have, nevertheless, almost doubled within the last six years, but by the end of 1933, the expansion in mortgage business appears to have been sufficiently great to justify the increased funds employed. The following figures summarise the progress of the movement since 1928.

(Million £)

	1928	1929	1930	1931	1932	1933
Liability to Shareholders	213 2	250 2	302 8	241 8	380 9	395 9
Liability to Depositors	36 0	38 9	44.7	50 3	61 5	75 5
Liability to Other Creditors	5 4	7 9	6 1	7 0	5 8	6 0
Undivided Profit and Reserves	13 8	15 7	17 6	20 1	21 7	24 1
Balance due on Mortgages	227 5	268 1	316 3	360 2	388 4	423 5
Other Assets	40 9	44 6	54 9	59 0	81 0	77 6
New Advances on Mortgage	58 7	74 7	88 3	90 3	82 1	103 2

But, however great the financial strength of the Building Society movement it must not be disregarded that the Building Societies are, in fact, a specialised form of Housing Banks, and that their attitude cannot be other than negative. They are unable to initiate schemes of construction on their own account and can only wait for suitable schemes to be presented to them for financing.

Since the war, the Building Societies have played a very large part in providing new houses—to the extent of financing about one million of the two millions built. But their contribution has been mainly in the artisan and lower middle-class type of accommodation. The present lowered rates of advance under the 1933 Act amount to $4\frac{1}{2}$ per cent for London and the South and 4 per cent elsewhere, but the limitation of the life of the mortgage to 30 years brings total loan charges up to about $6\frac{1}{2}$ and 6 per cent. Allowing further for the fact that 10 per cent of the building cost and the whole of land and development cost must be borne by the borrower, almost certainly at a higher rate of interest, no definite lowering of the cost of houses, as judged by inclusive rentals, provided through Building Society finance can probably be looked for in the immediate future. In this matter, the reservation must be made that the market for the higher standard of artisan-class housing for which the Building Societies have catered appears to be approaching the point of saturation. This fact alone may have the effect of diverting the attention of builders to houses of a lower standard, but even if the influence is not so direct, the effect of a fall in the average level of rents for this type of property through a further increase in supply may compel speculative builders to modify their present expectations of profit. Finance by Building Societies does not, nevertheless, promise to provide directly accommodation within the rent-paying capacity of the lowest-paid workers.

Borrowing by Local Authorities

The 1933 Act does not, however, remove from Local Authorities their obligation to make good, within their areas, deficiencies in accommodation due to the failure of private enterprise. As Local Authorities are able, in general, to borrow more cheaply than the private entrepreneur through the medium of a Building Society, there is a better chance that Local Authorities will be able to provide minimum standard accommodation on an unsubsidised basis, than that it will be provided by private enterprise.

The larger and stronger municipalities and councils which are able to borrow directly on their own account through the public issue of stock, or through Banks and Insurance Companies by a mortgage on their rates and revenues, should be able at the present time to raise money at the rate of $3\frac{1}{2}$ to $3\frac{3}{4}$ per cent, or an inclusive charge of some $5-5\frac{1}{2}$ per cent. Smaller authorities can always have recourse to the Public Works Loans Board, which is now lending at a rate of $3\frac{1}{2}$ per cent. Public Utility Societies can also use this source, though the cost would, in some cases, be about $\frac{1}{2}$ per cent higher. Facilities also exist for borrowing by Local Authorities of up to one-half of the proceeds of the sale of National Savings Certificates in their area, while Housing Bonds may be issued by local bodies other than Metropolitan Boroughs at a present interest rate of $3\frac{1}{2}$ per cent.

By the use of any of these methods, Local Authorities could undoubtedly borrow at a lower rate than private enterprise co-operating with a Building Society. But even with the low interest rates that they can achieve, the margin between an economic and uneconomic proposition for low-rented houses would be small even with substantial economies in building costs, and at their present level would

probably be on the wrong side in nearly every case. In any case, it is not unlikely that Local Authorities will be chiefly occupied during the next five years in slum clearance operations, for which they can obtain the 1930 subsidy.

During the year 1933-34 unassisted building by Local Authorities was insignificant in comparison with the results of private enterprise—1,967 houses against 207,869. Building by Local Authorities from September 1933 onwards was, however, at nearly three times the rate of the previous half-year, and it is possible that this trend has been continued. Local Authorities still bear the responsibility of supplying local housing needs where private enterprise has failed and the Ministry of Health will presumably see that this responsibility is adequately observed.

Public Utility Societies

A certain amount of attention, official and otherwise, has been given within recent months to the possibility of calling in the assistance of Public Utility Societies on a large scale for the finance of new housing. The bodies generally included under this definition are

(1) The Public Utility Societies proper, for which a better name would be "Voluntary Housing Associations."

(2) The Housing Trusts, such as the Peabody, Astor, Guinness, Lewis and Sutton Trusts, which build large blocks of working-class dwellings usually in slum or semi-slum districts. Any profits made by these trusts come back into improvements, reduced rents, etc., and they therefore function as charitable institutions.

(3) Housing companies which pay dividends, of which important examples are

The Artisan, Labourers and General Dwellings Co.,

Improved Industrial Dwellings,

East End Dwellings,

The Metropolitan Housing Corporation.

Many of these own substantial numbers of dwellings—the last-named probably in the neighbourhood of 20,000.

(4) Industrial Housing Associations, probably the largest category, representing participations by employers in organisations for the provision of accommodation for their employees. Important examples are Imperial Chemical Industries at Billingham, Lever's at Port Sunlight, Cadbury's at Bournville, Rowntree's at Earswick, Kent Collieries at Tilmanstone, etc. In most cases the Housing Associations pay a fixed rate of interest and are quite separate from the companies whose workpeople use the dwellings.

(5) The Garden City Trusts which operate at Welwyn, Hampstead, Letchworth, etc., and the dividends of which are limited. Although several of these aim at providing some artisans' dwellings, they do not, in general, touch more than the fringe of the working-class housing problem.

Approximately 250 Public Utility Societies have been registered in Great Britain since 1919, of which 175 were functioning during 1933. Since the War 18,271 houses have been provided with direct assistance from the Exchequer, most of them—about 12,000—by the Industrial Housing Associations. This figure includes only houses erected with the aid of direct Exchequer subsidies. No separate return of the number of houses provided by these bodies with assistance from Local Authorities is available.

An investigation carried out by The Garden Cities and Town Planning Association during 1933 covering 107 Public Utility Societies, showed the following results

	Number of Dwellings	Families Rehoused	People Rehoused
Houses	8,853	8,793	33,168
Flats	798	805	3,573
Reconditioning	1,732	2,256	10,322

The greater number of these houses were built with the aid of subsidies. The investigation did not include the societies known as the Tudor Walters Group which have built approximately 12,000 houses, mostly in mining districts in Yorkshire.

Under the 1930 Act, Public Utility Societies or organisations trading without profit, or with limited dividends, may arrange with Local Authorities to rehouse tenants displaced by the latter in

slum clearance schemes, in which case they may receive from the Local Authority the whole of, or more than, the appropriate Treasury grant, provided that rents charged are no higher than the Local Authority could have charged, if it had undertaken the work directly

Up to date, the L C C. is the only body which has co-operated extensively with Public Utility Societies, under Section 29 of the 1930 Housing Act, agreements have been entered into, or are in course of arrangement, with the St Pancras House Improvement Society, St. Marylebone Housing Association, Isle of Dogs Housing Society, Nags Head Housing Society, Poplar Housing Trust and Church Army Housing. The Kensington Borough Council has also entered into agreement with the Kensington Housing Trust to assist in its rehousing campaign, but except for an agreement at present under consideration in Southwark, Metropolitan Boroughs have so far not co-operated with Public Utility Societies on any scale. Six schemes are, however, reported to have been arranged or to be under discussion by Local Authorities outside London and it is possible that co-operation is increasing.

The degree to which Public Utility Societies can contribute towards the abatement of the shortage appears to us, however, to be limited under present conditions by considerations of finance. A representative selection of thirty of the larger Societies engaged both in building and in reconditioning shows the following average financial structure:

Share Capital	£6,400
Loan Stock	£12,800
Rate of interest on Loan Stock $2\frac{1}{2}$ - $4\frac{1}{2}$ per cent	
Donations	£3,700
Profit in 1933	£400

The St Pancras Housing Improvement Society has been excluded from the above figures because of the magnitude of its loan and share capital compared with the average:

Share Capital	£167,061
Loan Stock	£66,625
Rate of Interest on Loan Stock, $2\frac{1}{2}$ per cent	
Donations	—
Profit in 1933	£5,254

These figures demonstrate the limitations to the possible contribution of Public Utility Societies as now organised. They are due to the constitutional limitation of the contribution of each shareholder, which deprives the Societies of the substantial assistance of insurance companies, for instance, who are among the largest supporters of other public utilities operating with fixed dividends, such as gas and electricity. That we do not regard them as capable of rapidly making a substantial contribution to housing needs should not be taken as any reflection on the practical and psychological value of their work, but merely points to the need for constitutional changes. Under different conditions, in fact, E H C. might well qualify to participate in the financial concessions extended to Public Utilities.

Private Borrowing

The foregoing analysis of existing methods of finance by private enterprise leads us to the conclusion that the margin between an uneconomic and an economic proposition in the provision of minimum standard houses is narrower than one might anticipate and so narrow as to be capable of elimination. Money is, in fact, being raised in some instances at rates sufficiently low to permit the building of houses at the requisite rentals if full advantage were taken of possible economies in the technical field. But the organisations that are capable of raising money at these rates cover a very small proportion of the whole supply and are in effect small units incapable of realising those technical economies which are the other essential in addition to cheap capital. Public Utility Societies are a case in point, for they contribute but a small proportion to the total supply of houses and are in any case largely dependent on private charity, under present conditions, in achieving cheap finance. Local Authorities are far more capable of fulfilling the essential conditions, but they are already saddled with the responsibility of slum clearance, for which they can receive a subsidy, and it would be no more than human if that part of their time and energies which can be devoted to housing were to be devoted mainly to the slum problem during the next few years. In addition, and probably more important, they are far less favourably placed to institute the requisite technical economies than large scale private enterprise.

Speculative building, on the other hand, with a few exceptions, suffers from all the disadvantages of organisation into relatively small units both on the technical and the financial side. On the one hand it cannot achieve the greatest possible economy in building as individual turnover is small, on

the other hand, the high rate of return which it has customarily demanded is to no small extent governed by the fact that speculative builders cannot borrow except at high rates of interest. The situation, in fact, demands the introduction of a large scale organisation from which the profit incentive is not entirely removed, as in the case of Local Authorities and charitable organisations, but where such economies in building and finance are possible as to reduce the incidence of interest on inclusive rents to the point where building of minimum standard working-class houses becomes possible.

For a public company owning large-scale housing estates, there is the almost complete certainty of profit over and above what may be returned from rents and through savings in management, in the income received from non-residential property. The laying-out of a housing estate of, say, 500 acres would probably involve the construction of houses on not more than four-fifths of the total area and the reservation of the remainder for amenities and commercial purposes. Housing on this scale would create a local population centre of some 20,000 inhabitants. Provided that a fairly normal distribution of income groups is reproduced by some variation in the class of accommodation provided, which is desirable on sociological grounds if for no other reason, the creation of a market of this size holds out obvious commercial opportunities to the retail trade and all the other auxiliaries of modern life. The precise magnitude of the increment resultant on the sale of sites for commercial purposes cannot be forecast, but it would certainly represent a multiple of the purchase price of the land. It could, however, be anticipated with some certainty and at a much earlier date than a full return from investment could be expected in any new industrial enterprise. Land suitably situated for commercial development commonly increases considerably in value as soon as markets in the neighbourhood are assured, which in this case would certainly be not later than the occupation of the estate by its tenants.

In these circumstances, we submit that the finance of working-class housing by a public company issuing stock to the public on a commercial basis is worthy of much fuller consideration than it has yet received, and, in this connection, we put forward the following suggestions for attention.

An important factor governing the valuation of all fixed interest stocks at the present time is uncertainty regarding the future prospects of industrial recovery. The high price of gilt-edged securities is brought about by the glut of money which itself has been caused by trade depression and the absence of opportunities for safe investment in industrial development. The investor seeking security is forced to accept a low return upon his money and to purchase fixed interest stocks at to-day's high prices. But there is beginning to be an increasingly strong feeling that as trade recovers, the increased demand for funds will raise the level of money rates and cause some falling off in the price of Government securities. It is impossible to say exactly when this will take place, and it is probable that the fall in gilt-edged prices, as and when it occurs, will be only on a moderate scale. Nevertheless, the wise investor is already looking for a "hedge" against this coming about. He wants security but he does not want to put all his capital into gilt-edged at what *may* prove to be the top of the market. He is therefore looking for the type of investment that gives him adequate security at the present time but for which trade recovery will result in an increase in earnings and so fail to act adversely on its capital valuation.

Suitably framed, an issue of housing stock could be made to meet this demand very closely. In addition to providing residential accommodation at low rates, the E.H.C. would also provide, at higher rentals, sites for amenities of all kinds, in connection with its new housing schemes, from which the earnings would be closely dependent on trade recovery, since reduction in unemployment and increased money earnings by its tenants would increase the rentable value of commercial sites. It is moreover, contemplated that the E.H.C. would take a certain interest in land in the immediate neighbourhood of its estates in order to secure control of development and to obtain a share in the increase of land values due to the development of the locality. Hence, exactly those conditions which may cause a recession in the prices of gilt-edged securities would cause an increase in the earnings of the E.H.C. If an issue of housing stock is so framed as to permit investors to share in these increased earnings through a relatively high proportion of participating preference stock, it should be possible to borrow at a low rate of interest. From the receipts of residential rents a steady return on capital of $8\frac{1}{2}$ per cent could be assured under all conditions. Right to participate in profits up to a further 1 per cent out of earnings on commercial property should provide the investor with just that chance of "hedging" against the prospect of industrial recovery which is so diligently sought but so seldom found.

The existence of this guarantee, through rising earnings, of maintaining capital values when gilt-edged prices fall, should strengthen considerably the ability of the E.H.C. to raise capital at the present time at near the lowest rates achieved by any borrower, whereas the issue of large amounts of fixed interest bearing stock must meet with increasing doubts and difficulties with any further rise in gilt-edged securities, on account of the likelihood of capital depreciation when the present trend is reversed. On the other hand, it must be recognised that certain difficulties arise, as in all new industrial

undertakings, in connection with the unproductive period in the interval between the birth of a scheme and its attainment of full earning capacity, and this must influence the type of capital structure adopted

We believe, nevertheless, that an issue of housing securities could, on its investment prospects alone, command the support that it would undoubtedly also achieve through its popular appeal. The low rate of interest essential to economic housing would thereby be brought within the limits of practical finance, but the conditions under which it is capable of achievement are so special to present conditions that the importance of an immediate start must be universally obvious

V. ANALYSIS OF ALL-IN CAPITAL COSTS

(I) LAND CHARGES

The charge upon inclusive rent on account of land represents more than the mere purchase price of sites, though this is naturally the most important factor. Total land charges may be divided into—

- (a) Net Cost of Land,
- (b) Legal Charges,
- (c) Redemption of Tithes, Land Tax, etc ;
- (d) Surveyor's Fees ;
- (e) Interest Costs between purchase and letting,
- (f) Cost of Land purchase, staff, etc

The actual cost of land in relation to its utility for housing purposes will require consideration from a number of aspects; the five remaining items are equally variable, but more or less directly dependent upon the first. It will, accordingly, be easier to discuss them shortly before turning to the wider question of land purchase.

Charges Incidental to Land Purchase

The conveyance of land from one owner to another constitutes a transfer of property, and, as such, is subject to stamp duties at the rate of 1 per cent of the purchase price for amounts of more than £500. These are payable by the purchaser.

Employment of a solicitor to act on behalf of the purchaser, investigating the title and completing the conveyance, is another essential to land purchase. The fees chargeable in this case are laid down by the Solicitors' Remuneration Act as follows.

On freehold and common titles	Purchase Price	Fee
For investigating title, completing conveyance, etc	£1,000	1½%
	Second & Third £1,000	1%
	Fourth to Tenth £1,000	1%
	Each £1,000 above £10,000	1%
	and up to £100,000 .	1%

(Every transaction above £100,000 to be charged for as £100,000)

In 1925, solicitors were empowered to add 88½ to their remuneration in transactions not exceeding £50,000. This was reduced to 25 per cent by an order of July 11th, 1932, as regards non-contentious High Court business and references to arbitration.

On transfers with registered titles under the Land Transfer Act 1925	Purchase Price	Fee
Transfers in conveyancing and non-contentious business	£1,000	1½%
	Second & Third £1,000	1%
	Fourth & Fifth £1,000	1%
	Sixth to Tenth £1,000	1%
	Each succeeding £1,000	1%
	up to £100,000 .	1%

(Transactions of more than £100,000 to be charged as if £100,000. So long as the Solicitors' Remuneration Act (General Order) 1925 remains in force, fees on transactions under £50,000 are increased by 88½ per cent. Provided that, in respect of transactions in excess of £50,000, the amount chargeable shall be either according to the scale or reckoned as if the transaction were of the value of £50,000, whichever is the greater.)

It is, however, possible for a solicitor to come to an agreement with his client to make an inclusive charge, and this would be the normal method where there was continual legal work to be done

Some obligation may be incurred in respect of Land Tax. This is not a uniform charge, since the tax is apportioned and each parish is required to contribute an annual quota, and not the produce of any particular rate. Charges consequently vary from place to place and year to year, but in any case, the amount assessed must not be less than 1d in the pound nor exceed the amount which would be produced by a rate of 1/- in the pound on the annual value as assessed under Schedule "A" of the Income Tax Act 1842. It is, however, possible for a person from whom land tax is due to contract for its redemption at a varying rate on the amount of the last assessment. The same procedure is possible in respect of tithe charges, and would probably be adopted by a housing estate on acquiring land with these obligations

For practical purposes, however, extra charges on account of land tax and tithes are more apparent than real since they will have usually been discounted in the original purchase price

Valuation by a surveyor is a further item of preliminary cost which must be considered. The fee in this case is also on an agreed scale, at the rate of one guinea per cent on the first £1,000 of valuation, half a guinea per cent on the next £9,000, and a quarter of a guinea per cent thereafter

For the purpose of the housing proposals in this report, it is to be expected that the negotiation of purchases would be carried out through the retention of one or more skilled purchasers on the staff of E H C, in which case the cost of the department is likely to fall under general management costs. The item is not likely to be a disproportionately large one or to increase management costs appreciably. It is, moreover, possible that retention of special staff for land purchase, in so far as it would be extremely likely to include a solicitor, would appreciably reduce the burden of legal costs, so that any possible increase in management costs on this account should be weighed against possible savings in the costs incidental to land purchase in other circumstances.

The fifth and most important of the charges incidental to land is the allowance made for loss of interest during the development period. While it is possible to minimize it, there must be a certain unproductive period after land has been purchased but before houses have been completed and let, during which there is no economic return to cover interest charges on the capital invested. This being so, it is necessary to estimate what will be the unproductive period and to add to the original capital outlay a percentage sufficient to cover interest charges incurred during it. The unproductive period would be likely to vary between 6 and 18 months, with a rate of interest of 4 per cent, it would be necessary to allow a minimum of 2 per cent and a maximum of 6 per cent on the value of the land on this account

Land Costs in Relation to Suitability for Housing

The choice of sites for large-scale housing estates must be governed by many other considerations than the cost of land alone. Economic considerations place a limit to the amount that can be spent on land. Thus, in the case of cottage estates, if accommodation is to be provided at a density which does not repeat slum conditions, and at rents which the lowest-paid worker can afford, £400 per acre represents the top price which can be afforded for land. With this maximum limit, sites must then be sought which possess the greatest possible advantages in other directions. At all costs, the temptation must be avoided of utilising land, the only recommendation of which is its cheapness, in the long run it would probably prove a more expensive proposition to run the estate than on land of higher value with superior amenities

The most important factors affecting the choice of site are not mainly technical. There are, however, a number of technical conditions that must be satisfied before consideration can be given to the more general factors, and, among these, the following may be mentioned

- (1) Steep slopes should be avoided as adding to the cost of building and development,
- (2) Liability to flooding must be investigated,
- (3) Subsoil conditions must be examined with a view to their effect on drainage, liability to damp, foundations, etc ,
- (4) Height above sea level and exposure to wind must be considered as affecting climatic amenities,
- (5) Where colliery workings are present, the possibilities of subsidence must be investigated,
- (6) The possible effects of the presence of noxious industries must be considered

These primary essentials having been satisfied, provided that conditions of supply of gas, water, and electricity are adequate, the larger factors of transport and population density play a most important part in the choice of sites

Transport Costs as a Determinant in the Choice of Sites

Probably the most important factor affecting the respective suitability of various sites for housing purposes is the question of transport facilities. These are, in fact, so important that one proposed slum clearance scheme which has been brought to our notice, makes cheap and rapid transport the starting point for its scheme, and goes so far as to invent an entirely novel system of transport in order to make large-scale suburban housing practicable. Working-class accommodation of the requisite rent standard could quite easily be provided by utilising agricultural land at some distance from urban centres. But while rent is one item of a working-class family budget, which it is desirable to minimize, fares constitute another. Cheap accommodation which is only available through a large weekly outlay on fares is, in fact, not cheap accommodation at all. Ample evidence of the difficulties that may arise is provided by the L C C estate at Becontree, which was at first definitely deficient in transport facilities, and still involves its tenants in a large weekly outlay in time as well as in money. In the case of the by no means inconsiderable number of urban workers, those in central markets and railway warehouses, for example, who must get to their work at a very early hour, time may be an even more important consideration than expense. On the other hand, there is a considerable daily emigration of workers across London and from Central London to the new industries on its northern and north-western outskirts.

These anomalies may be avoided in the future by the use of foresight in the selection of sites. The co-operation of transport companies should be called in at an early stage on any really large scheme, and there is no reason to believe that it would not be readily given. Just as the creation of new population centres would present valuable opportunities to the retail trades, so would it provide openings for transport undertakings. For smaller schemes, transport owners would probably often be able to indicate areas where services are already in existence without being called upon to bear their maximum traffic load, as there is a tendency for transport undertakings to become landowners in districts which they are engaged in developing, their co-operation might be doubly useful. A preliminary arrangement of some sort to secure adequate transport would occur naturally to any management engaged on house building on commercial lines as an essential of success. The fact that it has not commonly been a feature of municipal housing schemes is mainly attributable to the watertight compartments into which the various activities of a local authority are usually divided. This is not a necessary feature of local government, and it should not be very difficult to secure in some degree the necessary co-ordination of activities. A further obstruction in the past has been the nature of the transport companies themselves who, with some exceptions, were neither sufficiently large nor sufficiently far-sighted to appreciate the possibilities of such co-operation. The situation has radically altered in this respect within the past few years.

Adequate transport facilities are also the vital condition to the success of any attempt to secure the planned growth of towns through the creation of satellite communities in place of the present tendency towards a sprawling development along existing road frontages. That such decentralisation is highly desirable in the interest of preserving the amenities of the countryside in the neighbourhood of large towns from an unsightly, uneconomic, and unsafe type of development, and from the deterioration of arterial roads into built-up areas, is open to no doubt. Whether transport services are provided by road or rail, their efficiency in "ribbon-development" areas is much impaired by the necessity for frequent stopping, and the time taken to complete a journey to or from the industrial or commercial centre is considerably prolonged. On the time factor, such districts may well be far less accessible than areas of more compact development at a greater distance which can be economically provided for by a non-stop service.

Housing in Relation to Industrial Development

The transport factor in itself would probably exercise a powerful influence on the E H C towards building in the neighbourhood of existing factories favourably situated outside towns. There are other advantages in such a policy. Perhaps in time, especially in view of the strength of the tendency towards the decentralisation of industry, factories might tend to move to the estates of their own accord in order to use the existing labour supply. But this would only come about after the estate was fully developed, and then only provided that suitable factory sites and services were available. In the meantime, however, the estate must have an ample supply of tenants in order to minimize the proportion of empties, and, if it is to minimize costs of repairs and maintenance also, it is desirable that it should know something about the prospects of the tenants that it chooses, though this latter is a function of management rather than a consideration entering into land purchase. Choice of a site in the neighbourhood of factories of permanent industrial prospects should, however, ensure the former, while co-operation with factory managements should go a long way towards securing good tenants.

It is not improbable that this factor would present some difficulties in practice and would call for the exercise of the keenest discrimination. The ideal situation arises where a single large plant is in the course of erection in a relatively undeveloped area where no housing facilities exist. Examples of this type of development in the past have been the Rowntree works outside York, the Cadbury works at Bournville, the development of the Kent coalfield, and the Imperial Chemical Industries plant at Billingham, but the only recent cases of importance have been the Ford works at Dagenham and the new steel plant at Corby in Northamptonshire. Development of this kind would appear to be exceptional, and may well tend to represent the consolidation or transference of existing plants rather than the erection of entirely new ones.

New industrial development has, in fact, tended to take place much more through the creation of small units, each of which exercises no very great demand for housing, though an aggregation of small plants, such as has occurred at Slough and Park Royal, may require a considerable amount of accommodation. There is, in fact, a tendency for new works, being mainly small and unable to attract their own labour supplies from a distance, to seek population centres of some density. New large-scale housing enterprises would, therefore, normally be compelled to exploit this tendency, and, in spite of the risk of securing insufficient tenants at the outset, would probably be well advised to start operations in the neighbourhood of a few existing factories of good prospects in the hope that others would be attracted by favourable labour conditions. This course would, on the whole, seem preferable to the construction of estates in older industrial areas, where the demand for houses is admittedly large, but where the future prospects of existing industries and the prospects of attracting new industries are uncertain. Such areas have in any case been fairly well served by municipal activities, and it should be an important function of the E.H.C. to secure the co-ordination of new residential with new industrial development.

Effects of Town and Country Planning Schemes

Town and country planning schemes may possibly affect land costs very materially, both directly and indirectly. Progress in town planning has proceeded at such a pace over the last few years that the majority of suburban areas are now subject to interim town planning control by local councils. Nearly 13½ million acres of land, or one-third of the total area of England and Wales, by September 30th, 1934, were covered by planning resolutions or by schemes, on the initiative of, or in the areas of, 917 Local Authorities. Though full powers are not accorded till planning schemes are completed and approved by the Minister of Health, Local Authorities have substantial powers of control over development as soon as their initial resolutions to prepare a planning scheme have been approved. Thus, even in the interim period before the scheme has been approved, which persists for at least three, and often four or five years, private enterprise is subject to the control of the planning authority. Appeals against its decisions may be made to the Minister of Health—450 were lodged in 1933-34—but much time may elapse before a ruling can be obtained, especially if the case touches on a vital principle.

The existence of town planning schemes would undoubtedly make the task of the E.H.C. more difficult. It is not that its actions would necessarily conflict with their requirements where good schemes have been evolved without forgetting the cost factor. Indeed, where land has been scheduled as a residential zone on the verge of industrial areas, the E.H.C. might be able to acquire it more cheaply than if there had been no planning scheme and it had to face the potential competition of industrial or commercial users.

There are, however, possible bones of contention in the planning requirements themselves, where they are rigidly interpreted according to the letter rather than the spirit. In many instances, the density of houses allowed in residential zones is only eight to the acre, and seldom exceeds twelve, such a density enables each house to be provided with its own garden. We do not intend to enter into the controversy over the desirability of relatively large private gardens. At the present time it is evident that they are by no means universally appreciated, or cultivated by tenants, though it is to be hoped that this attitude will change with time. We would, however, point out that on economic grounds it is more difficult to provide adequate common gardens and playing fields as well as private gardens where a low density is adopted, and that even if private gardens are not appreciated, open spaces are widely used where available.

There is, moreover, some reason to suppose that the scheduling of large areas for development at a density of twelve to the acre, is not unconnected with the growth of ribbon development. Our attention has been drawn to the planning scheme for one city, which is paralleled elsewhere, where the land zoned for residential development would be sufficient to provide for the accommodation of the future population for over three hundred years, assuming the rate of increase of the past decade to be maintained, which is, in any case, unlikely. The zoning of land for housing admittedly does not

necessarily mean that it is intended to be, or ever will be, used for that purpose, but that its reservation from possible housing use could only be made at a compensation cost which the Local Authority could not afford. Nevertheless, the consequence of planning of this type is the surrender of control over very large areas of land, it gives no guarantee of compact and orderly development beginning near the centre, and uneconomic, sprawling, development along existing road frontages is in no wise checked.

A second case arises in connection with the rigid zoning of land which is a characteristic of many town planning schemes. We have called attention elsewhere to the good results achieved by placing one bad tenant between two good ones, and we believe that the principle might be extended with advantage to the field of town planning. The segregation of different classes of houses under many interim development schemes at present offers a substantial obstacle to any type of mixed development on this principle. Once again adherence to the spirit of the regulations would tend to produce better results than observation of the letter.

Further examples of unimaginative planning occur in a number of cases where a large allotment has been made for an industrial zone, in spite of the absence of a local industry, or of the desirability of attracting one. There is no good reason for supposing that every good town planning scheme should include an industrial zone just because the Act provides for such a zone if necessary. There are, nevertheless, towns in Southern England, of an eminently non-industrial character, where good residential land has been set aside for this purpose.

We would suggest, therefore, that too rigid a view is often taken by town planning authorities with regard to the definition of development areas and the density at which they are to be developed. Control of development so that it takes place from the centre outwards would prevent many undesirable forms at present legalised, though it presents undoubted difficulties in the matter of compensation. In the second place, development at a greater density than 12 per acre, under adequate control, may make it economically possible to provide communal amenities and playing fields. In such cases, the average density over the estate, as a whole, might, in fact, not exceed the 12 per acre requirement, even though the density of the built-up area were greater. Some relaxation of the letter of the law on these lines would be well worth while, if only to relieve the monotony of the usual housing estate. Yet many planning authorities at the present time would probably not pass such a scheme, and appeal to the Minister to permit a more liberal interpretation of the regulations would be necessary.

Ribbon Development

Public opinion has recently paid increasing attention to the evils of ribbon development, but no very definite solution to the problem, or even an adequate definition of it, has so far been advanced. Most attention has been devoted to the building-up of new arterial roads and their deterioration into congested streets, which cannot serve the purpose for which they were intended. A solution to this particular problem has been sought by three County Councils in the acquisition of statutory powers to control development of land bordering on important highways, in order to ensure that building shall take place at an adequate distance from the main road, and that through traffic shall not be encumbered or the lives of residents endangered. The extension of this form of control to other areas would undoubtedly have a salutary effect in preventing the recurrence of such building as has disfigured certain arterial roads in the past. But the case of the arterial road is only one aspect, although an important one, of a much wider problem which has been less thoroughly considered. It is not unlikely that if ribbon development is banned from arterial roads, it will only recur in the same way and with increased vigour on the minor roads that radiate from large urban areas. While it may not in this case prove so offensive to the public as formerly, in that they will see less of it, the fundamental objection to it as a method of development—that it results in a sprawling and uneconomic growth—would not be diminished. The influence of town planning on this problem and the extent to which, in the present circumstances, it may even encourage ribbon development have already been touched upon. Where large areas of land outside urban areas have been zoned for residential development, it is only natural that building owners should choose sites on existing road frontages both for ease of development and with a view to the accessibility of the property for potential tenants to existing road transport. If the permitted building density is fairly high, ribbon development is inevitable. Economic considerations, in the shape of the probable costs of compensation, prohibit the creation of a zone of open spaces around all towns, nor is such a step particularly desirable, except in the case of large cities, if the adjacent countryside can be satisfactorily preserved from semi-urban development. If it is to be satisfactorily preserved, some form of control of *all* road frontages seems imperative, and it is suggested that such a control could be exercised without undue cost or dislocation by distinguishing in planning schemes between land zoned for *immediate* residential development and land reserved for *secondary*

or delayed development except at a low density. The prospective building owner would then have the alternative choice of the immediate margin of an urban centre or the immediate margin of a satellite town, while the intervening land would only become available for immediate development as and when the first allocation for residential development was exhausted

The Price of Land

The price of land suitable for building purposes varies from about £100 per acre in rural areas up to £20,000 for developed sites in the centre of cities. For working-class cottage estates, it has been seen that the intermediate category—suburban land—is the only one which is likely to satisfy requirements on the score of accessibility and to be sufficiently cheap to allow a low rent to be charged. Even then, suburban land may vary widely in price, but, generally speaking, the sites most suitable for housing, by reason of their proximity to either factories or transport facilities, are likely to be the more expensive sites. This being so, the E.H.C. would be forced to adopt an extremely careful policy with regard to land purchase. If it became known that the E.H.C. was in the market as a buyer, any tendency towards the increase in price of desirable sites for other reasons would be immediately accentuated. Moreover, the importance of acquiring land cheaply does not lie only in its influence upon all-in costs, but also in the possibility of profit through a permanent increase in land values as a direct result of development. In these circumstances it would be essential to preserve secrecy in regard to the locality of the Company's activities and to employ at an early stage skilled land purchasers with the object of acquiring options on land in suitable suburban areas. Provided that this task was left in the hands of specialists, we believe that suitable land could be secured at moderate cost. Variations in the price paid for land for housing purposes are so great and so apparently arbitrary that it is difficult to gain any definite impression of their average level in suitable areas. Sites of apparently equal suitability for housing and within a few miles of each other may command entirely different prices. In general, up to £250 per acre would seem to be a fairly usual price on the municipal housing estates of all but the largest Local Authorities. The latter may pay any price up to £1,200 per acre, according to situation, in the outskirts of large cities. The following figures show the prices paid by the L.C.C. for the sites of recent housing estates

	Total Area Acres	Cost of Land £ per acre
Becontree . . .	2,780	225
St Helier . . .	925	400
Downham . . .	524	190
Watling . . .	386	540
Wormholt . . .	66	900

(2) LABOUR

WAGES AND OUTPUT

The group of industries roughly classed together under the heading of Building is one of the largest in the country

The total number of insured workpeople in the United Kingdom at July 1933 was as follows ("Ministry of Labour Gazette," Aug. 1934)

	Total (male and female) Workers
Building . . .	883,780
Public Works ¹ . . .	277,580
Structural Engineering . . .	29,200
	1,190,560

¹ There is some indication that the figure given for public works is an administrative fiction and includes many men temporarily employed on relief work

In addition, the building industry takes the whole or a substantial part of the output of the following industries, the number of workers in which is also given (July 1938):

United Kingdom	Male and Female Workers
Stone quarrying and mining	46,780
Slate quarrying and mining	10,080
Clay, sand, gravel and chalk pits	16,520
Cement, lime and whitening	15,520
Brick, tile and pipe making	89,650
Glass, excluding bottles and scientific glass	28,160
Paint and varnish	21,080
Stove, grate, pipe and general iron founding	91,550
Sawmilling and machined woodwork	58,480
Total	877,720

It is also an important consumer of the products of the blast furnace, steel rolling, iron and steel tube industries, electrical engineering, cable making, wiring and contracting, linoleum and oilcloth, and to a smaller extent transport

The importance of the building industry may be illustrated by comparing it from the point of view of employment with the other major industries in the United Kingdom.

Distribution	1,992,500
Coal mining	1,023,910
General Engineering	528,190
Cotton	499,980

No other industry except agriculture employs over half a million workers.

Wage Rates

Wage rates in the building industry are fixed on a national basis under an agreement of the National Joint Council for the Building Industry to which the following organisations adhere

National Federation of Building Trades Employers
 National Federation of Plumbers and Domestic Engineers (Employers)
 National Federation of Slate Merchants, Slaters and Tilers.
 National Federation of Building Trades Operatives
 Amalgamated Society of Woodworkers.
 National Amalgamated Society of Operative House and Ship Painters and Decorators
 United Operative Plumbers' and Domestic Engineers' Association
 Amalgamated Slaters' and Tilers' Provident Society
 National Amalgamated Operative Street Masons', Paviers', and Roadmakers' Society.
 "Altogether" Builders' Labourers' and Constructional Workers' Society
 National Builders' Labourers' and Constructional Workers' Society.
 National Union of General and Municipal Workers
 Amalgamated Union of Building Trade Workers.
 Amalgamated Society of Woodcutting Machinists
 Transport and General Workers' Union

Briefly, as far as wages themselves go, the agreement provides.

- (1) For the division of all towns into grades and their classification as A, A1, A2, A3, B, . . . and so on.
- (2) For the fixation of a basic scale of rates known as "datum standard rates" based on the Ministry of Labour cost of living index, a level 78 points above the July 1914 figure constituting the datum figure
- (8) For the periodic calculation of "current standard rates" based on the cost of living index during the previous twelve months.

(4) For the existence of two scales, one for craftsmen and the other for labourers, the latter to receive 75 per cent of the rates for the former. Thus the following table gives the grade classification, the datum rate, current rate per hour (from February 1st, 1934) for craftsmen and labourers, and the number of areas in each grade.

Grade Classification	Datum Standard Rate s d	Current Rate Feb 1, 1934		No of Areas in each grade
		Craftsmen s d	Labourers s d	
A	1 8	1 5½	1 1¼	199
A1	1 7½	1 5	1 0¾	91
A2	1 7	1 4½	1 0½	76
A3	1 6½	1 4	1 0	97
B	1 6	1 3½	11¾	80
B1	1 5½	1 3	11¼	71
B2	1 5	1 2½	11	88
B3	1 4½	1 2	10½	128
C	1 4	1 1½	10¼	52

	Special Current Standard Rate s d	Corresponding Labourers' Rate s d
London Area		
Within 12 miles radius Charing Cross	1 7	1 2¼
Between 12-15 miles radius Charing Cross	1 6½	1 2

Provision is made for joint negotiating machinery for the consideration of claims for regrading of towns, and such regrading has usually been in an upward direction. A further important effect of the agreement has been to fix one rate for all skilled workers in any one town, before the War the rates for bricklayers, plumbers, plasterers and painters were seldom the same, even in the same town. Fluctuations as to the proportion of the rates for skilled workers received by labourers have also been eliminated.

In certain cases variations are recognised, the commonest being the reduction of painters' rates by 1d or 1½d per hour below that of other skilled craftsmen. At times, when the industry is unusually busy in any district, particular trades may be paid higher rates. For instance, during the present summer (1934), owing to a shortage of bricklayers and plasterers, many firms in London are paying considerably above the official rate for these trades, and a figure of 10d over rate for plasterers has been quoted. The arrangement is, of course, temporary, and a matter of bargaining between individuals. An application by the employees for an all-round increase is at present the subject of negotiation.

There is, perhaps, some justification for the criticism that the fixing of one standard rate for all craftsmen is unfair in so far as the costs of apprenticeship or training, tools, and risks of unemployment are variable, but on the whole the scheme has worked well and with remarkably little serious friction.

It should be observed that the standard rates are not equally strictly adhered to in all districts, particularly those where the Unions are weak, and that there are certain anomalies with regard to overtime, for which not all employers pay higher rates.

A few years ago the building industry was often regarded as a sheltered industry in which wages had risen in the post-war period more than the average. Skilled workers' wages have, however, been reduced by ½d per hour under the cost of living index agreement for four successive years, and although in the levelling out process which has also resulted from the Joint Council machinery the tendency has been to raise the standard of the lower paid areas and trades to that of the higher paid, the net result has been that wages in general have been brought fairly well into line with those in other industries.

Thus in 1933 a craftsman in a Grade A town would have received about £3 4s for a forty-four hour week (excluding allowances for special work, e.g. on scaffolding, chimneys, swings and cradles, or in hot and dirty places), and a labourer £2 9s, while the corresponding figures for a Grade B3 town (which covers the second largest area after Grade A) would have been about £2 11s and £1 19s. The average for all workers (skilled and unskilled) in the iron and steel industries (blast furnaces, steel furnaces, and rolling mills) was about £2 15s.

It should be noted that the better type of building trade labourer is in fact a more or less skilled man, and the term labourer is almost as misleading as in the case of agriculture

The following are some brief notes on the constitution and operation of the Joint Council. There are up to forty members, half employers' and half operatives' representatives. Apart from wage rates and grading as outlined above, the Council deals with working hours, extra payments, overtime, night gangs, and walking, travelling and lodging allowances. It also provides a mechanism for adjusting disputes without resort to strikes or lock-outs. A good deal of the work is decentralised by the appointment of Regional, Area and Local Joint Committees.

The following table¹ shows the variation of wage rates (1914-88) compared with the cost of living index and the cost of working-class house building. Figures are taken as at the end of December each year, and are based on actual work carried out mainly in the London area. The cost of working-class houses are from Ministry of Health figures and for comparison have been reduced to a price per foot cube, on the basis that 1s per square foot is equal to 1d per cube foot.

Year	Cost of Living Index (June 1914=1/-) s d	Craft Wages per hour s d	Per Foot Cube	
			Working-Class Houses s d	Working-Class Flats s d
1914	1 1	11½	—	9
1915	1 2½	11½	—	10
1916	1 5½	1 0½	—	11
1917	1 8½	1 3½	—	1 1½
1918	2 0	1 7½	—	1 4
1919	2 1½	1 10½	1 6	1 9
1920	2 6	2 4	1 9	1 10½
1921	2 8	2 0	1 1	1 9½
1922	1 9	1 7½	9	1 7
1923	1 8½	1 7½	9½	1 5½
1924	1 8½	1 9½	10½	1 5
1925	1 9	1 9½	11	1 5
1926	1 8½	1 9½	10½	1 5½
1927	1 8	1 9	9½	1 5½
1928	1 7½	1 9	9½	1 4½
1929	1 7	1 8½	8½	1 4
1930	1 6½	1 8	9½	1 3½
1931	1 5½	1 7½	8½	1 3½
1932	1 5	1 7	8	1 3
1933	1 5	1 7	7½	1 2½

For purposes of comparison the following costs of labour and materials are of interest¹

	1914	1920	1932
	£ s d.	£ s d.	£ s d.
Wage Rates			
Unskilled (per hour)	7½	2 1	1 2½
Skilled (per hour)	11½	2 4	1 7
Ballast (yard cube)	5 9	15 0	6 0
Sand (yard cube)	7 0	16 0	8 0
Cement (yard cube)	1 17 0	3 10 0	2 0 0
Fir Timber (ft cube)	1 9	4 6	2 0
Steel Rods (ton)	9 0 0	13 10 0	10 0 0
Cost of Living Index	1 0	2 6	1 5½

In some districts before the War there was a considerable amount of piece work, particularly in connection with plastering. Immediately after the War this entirely disappeared, and even to-day on contract work it is very rare and limited to certain trades. Latterly, however, there has been an increase in its re-adoption on speculative building estates. In some cases a majority of the work is carried out on some such system. The commonest form is, perhaps, the letting of sections of the work to small firms or groups of men at a price, the employer finding materials and scaffolding. Brickwork, joinery fixing, and tiling are examples of trades commonly carried out in this way.

There is no doubt that it has had a detrimental effect upon the quality of work, and although some men may be found who apparently like it, the system is particularly objectionable in an industry unable to guarantee continuity of work.

¹ H. J. Venning, F.S.I., "Architect and Building News," January 12th, 1934.

At the moment some contractors are experimenting with imported labour from depressed areas, and on one contract in North London, at least, all the labourers are imported and are said to be paid 2½d under rate. There is no doubt that such practices, even if they make for cheaper building of equal quality, strike at the whole system of agreed rates and are likely to be the cause of trouble in the future. It is sometimes stated by the Trades Unions that a substantial proportion of these men come from Ministry of Labour training centres, and this has been advanced as a criticism of the latter particularly with regard to the speed with which it is attempted to train skilled labour.

Output Per Man

It has often been stated that the production per man hour is now much lower than in pre-war years: figures of bricklayers setting 700 to 1,000 bricks a day against 300 at the present time are quoted. It is difficult to find irrefutable evidence on the matter, but on the whole it appears to be an ungratified opinion, except in so far as may be due to a decrease in the number of working hours per day.

The main incentive to large output has always been the risk of losing employment at a time of slack trade, and there is no question that the recent depression has been at least as severe as any before the War. In periods of boom the output per man tends to slow down because the workmen feel sure of their jobs, whereas when a slump comes they are more anxious to retain their jobs, and there is an improvement in output. The very fact that figures are quoted per day show that they are not based on accurate knowledge as the working day is now considerably shorter. It is also almost impossible to find really comparable conditions of work. Before the war, a bricklayer put away a relatively large number of bricks on, say, bridge work or thick, plain walls, and the same applies to-day, but these figures cannot be compared with the output on, say, domestic work with 11 in cavity walls fair faced on both sides and with innumerable openings and breaks. Much the same considerations as with bricklayers apply to other trades employed on building. On the whole, too much reliance cannot be placed on statements as to reduced output per man.

If criticism is to be made, it is both more accurate and more likely to be helpful if directed towards general working conditions. The general serving of materials, arrangement of scaffolding and utilisation of mechanical aids to reduce fatigue in the more arduous tasks has not changed much in the last few years when compared with the other principal industries, and there is undoubtedly a wide scope for the application of the principles of scientific management to the building industry.

The net value of output per person employed in building and contracting is very similar to that in other industries, although it is notable, as the following figures show, that there has not been the same fall in the value between 1924 and 1930 as in other industries. This is accounted for by the fact that, even allowing for the disastrous effects of the cessation of public works expenditure, the building industry has not had to face the same economic crisis as the exporting industries, and the fall in the cost of building has not been nearly so great as that of the prices of most export products, as is shown later. The figures would, of course, have been different if the Census of Production had been taken in 1922 instead of 1924. The method used for obtaining a figure for the average net annual output per man employed is subject to certain well-known inaccuracies, but in building, as in other industries, there is no other possible method.

The division of output and employment according to class of work done by building and contracting firms, including sub-contractors, but excluding public utility undertakings, local authorities, government departments, etc., was given by the preliminary returns of the 1930 Census for Great Britain as follows. Only firms employing more than 10 persons were covered.

	Gross Output £'000	Net Output £'000	Average No of Persons Employed No	Net Output per Person Employed £
Builders engaged in work of new construction for building owners	125,925	56,856	218,082	202
Firms engaged in repair and maintenance work on buildings	26,848	15,925	101,235	157
Firms engaged in shop and office fitting	4,710	2,645	10,511	252
Firms engaged in the construction, etc., of highways	7,621	3,871	16,217	239
Sub-contractors	7,795	4,077	18,988	215
All other firms	8,418	4,763	24,185	197
All Firms	181,812	88,137	452,118	195

The net output per person employed under the same classification (building and contracting industries) was given by the Census as follows, and for the purposes of comparison net output in certain other industries is given in the following table

Great Britain	1980	1924
Gross output (value of work done, etc.) £ mill	181	160
Net output (gross output value less cost of materials, sub-contract work, etc) . . . £ mill	88	79
Average number of persons employed, thousand	452	411
Net output per person (£)	195	198
<i>Comparison of net output per person</i>		
<i>With other industries:</i>		
Iron and Steel (£)	186	200
Coal Mining	148	175
Electrical Engineering	218	219
Shipbuilding	210	169
Cotton Spinning	104	187
Cotton Weaving	119	183
With all industry	211	214

NOTE.—In comparing the figures for 1924 and 1980 it should be remembered that these have not been corrected for price changes

Fluctuations in Employment

The building industry has always shown wide fluctuations in activity, and unemployment has varied greatly, not only seasonally but from year to year. Seasonal variations are due to the difficulty of carrying on open-air work in bad weather, and improvement in this direction cannot be expected until the proportion of the total work executed under factory conditions is increased. The possibility of this is dealt with elsewhere in this report. Long-term variation is due not only to general variations in the level of economic activity, to which the building industry is at least as sensitive as other industries, but also to a peculiar extent to Government policy. This will be seen when it is remembered that a large part of the houses erected since the war have been subject to some form of Government grant or subsidy, and the major part of the public works section employing 277,580 out of 1,190,560 insured workers is directly dependent upon Government sanction.

Year	Building Av Percentage of Insured Workers Unemployed in U K ¹	Public Works Av Percentage of Insured Workers Unemployed in U K ¹	Building Plans Approved by 146 Local Authorities	
			(£ million)	Index (1924=100)
1925 1st Qr	11.1	18.9	16.0	109.6
2nd Qr	7.4	16.1	17.9	122.6
3rd Qr	7.7	15.0	16.0	109.6
4th Qr	11.0	17.9	16.6	113.7
1926 1st Qr	11.3	18.8	20.1	137.7
2nd Qr	8.4	18.1	16.9	115.8
3rd Qr	9.3	18.8	15.4	108.9
4th Qr	12.4	21.7	14.8	101.4
1927 1st Qr	12.1	20.1	16.6	113.7
2nd Qr	6.8	15.1	17.2	117.8
3rd Qr	7.6	15.1	14.7	100.7
4th Qr	13.4	19.0	15.8	103.2
1928 1st Qr	14.5	21.1	15.9	108.9
2nd Qr	9.7	17.8	17.2	117.8
3rd Qr	10.6	19.2	17.1	117.1
4th Qr	14.2	23.2	17.2	117.8
1929 1st Qr	19.1	26.9	15.7	107.5
2nd Qr	9.0	19.5	22.1	151.4
3rd Qr	9.3	19.8	16.4	112.3
4th Qr	15.2	23.8	18.9	129.5
1930 1st Qr	17.5	26.9	18.8	128.8
2nd Qr	12.9	26.0	20.2	138.4
3rd Qr	14.5	28.5	17.2	117.8
4th Qr	20.4	29.8	18.4	126.0
1931 1st Qr	24.9	32.9	16.3	111.6
2nd Qr	18.2	27.8	16.9	115.8
3rd Qr	19.1	30.0	16.3	111.6
4th Qr	26.5	35.1	13.6	93.2
1932 1st Qr	31.3	37.8	14.5	99.3
2nd Qr	26.3	36.9	18.1	124.0
3rd Qr	27.6	40.8	14.8	97.9
4th Qr	30.6	48.6	19.4	132.9
1933 1st Qr	32.8	45.0	19.6	134.2
2nd Qr	20.3	42.2	21.9	150.0
3rd Qr	19.3	45.6	20.8	142.5
4th Qr	22.0	47.7	21.4	146.6
1934 1st Qr	22.9	47.2	23.5	161.0
2nd Qr	15.8	43.4	26.2	179.5

¹ "Ministry of Labour Gazette," August, 1934

The seasonal variation in the volume of unemployment is shown in greater detail by the following table for 1982 and 1983. The variation in the latter year is perhaps particularly bad, but is not an unfair example.

TOTAL UNEMPLOYED BUILDING AND PUBLIC WORKS

	1925	1982	1983
January	122,148	884,490	457,209
February	110,474	881,489	426,420
March	98,842	850,050	860,010
April	88,177	833,005	820,074
May	75,585	826,856	294,246
June	74,715	827,748	295,025
July	81,632	851,606	802,466
August	81,554	851,451	292,234
September	87,554	868,172	802,682
October	97,829	879,570	804,260
November	111,153	892,330	818,996
December	181,651	408,049	862,921
Average	95,897	862,418	886,503

It is important to notice that building is one of the two trades (catering being the other) which has a specialised employment exchange run under the Ministry of Labour at Tavistock Street, Covent Garden.

This was established in 1918 as the result of joint action between the Trade Unions concerned and the London Master Builders' Association. There is a joint committee of masters and men which assists in the direction of the exchange, and the latter is used by every section of the trade, both skilled and unskilled, organised and unorganised.

It is staffed by men having practical experience of the trade, and it is stated that this has been found of the greatest benefit to all concerned. Employees use the exchange even if registered in other districts, and vacancies are notified by employers, either direct, or through local exchanges, or via the national clearing house, from other parts of the country. The premises are unusual in that they include reading rooms, tool rooms, waiting rooms, and a large meeting room available for certain specified uses by associations both of employers and employees.

There appears to be no doubt from reports from all sides that it has been a most successful enterprise. Owing, however, to the scattered nature of the industry, it seems that it will unfortunately always be impossible to organise similar centres outside a few of the largest areas.

Men are normally only employed for the duration of particular contracts or parts of contracts, and very few, except foremen, are employed permanently from one job to another, particularly in the case of general contracting. The wage rates are quoted per hour, and legal notice still is one hour, although a day's notice is probably commonest, and additional warning of the probable cessation of work is generally given when possible. In many cases individual men will follow a particular foreman, and foremen are known to ask for jobs on the strength of "a good following." To be known personally to a number of good foremen is one of the surest ways of obtaining regular employment, and in this, as in other walks of life, the "good mixer" stands more than a fair chance of success. While the system works in a typically British way, it cannot be said to be ideal. One particularly unfortunate possibility is that the foreman will demand a weekly payment from men under him, at any rate when work is scarce. This custom, which is happily very rare, is one which is wholly vicious and is exceedingly hard to detect. The giving of written references is uncommon and there is still a great deal of labour engaged from those who tramp from job to job and apply at the foreman's office. From the point of view of the applicants it must mean a great waste of energy, and it is to be hoped that an increasing number of firms both in and out of London will make it a rule only to take men on from the Exchanges.

It should be noted that there is perhaps a higher proportion of men permanently engaged with firms which have a fairly regular load of jobbing work, and with sub-contractors and firms where there is a large proportion of work carried out in the shops.

In general the figures given above confirm what has been emphasised both throughout this report and elsewhere, that the building industry suffers from wide fluctuations in activity, not only seasonally but from year to year. There is no doubt that one of the principal methods of reducing costs is through elimination of such fluctuations. There is reason to believe that the risk element in building has

contributed largely in the past to the high level of costs and the casual nature of employment through the ever present possibility of a heavy decline in activity, which has, on the one hand, inflated the profit margins of builders and, on the other, encouraged them to employ men in a way that permits their discharge at short notice. A constant load of activity would go far towards reducing the risk element at present expressed in the form of high profit margins, and eliminating much of the casual nature of employment. It could not fail to react favourably on the operative and builder as well as on the building owner.

Seasonal fluctuations can only be reduced by new building methods and new building materials, leading to an increased proportion of work done under factory conditions. Any movement in this direction is seriously hampered by present building laws. A good example is the impossibility of erecting even a trial block of buildings on the Mopin system, which has proved successful in the suburbs of Paris. Whether the system is or is not suited to conditions in this country is immaterial to the matter in question, but it is undeniable that it is the first large-scale building system which can be carried on without interruption due to inclement weather, and at an equal rate throughout the year. That the first block has not yet been erected in this country, is solely due to the fact that the system does not conform to regulations, based originally on traditional building practice, which are sufficiently inflexible to make it impossible to introduce new materials and systems without first obtaining amendments to the rules.

The possibility of levelling out variations in activity from year to year must depend upon the Government attitude to building, and on the pursuit of a planned and co-ordinated long-term policy. This question is dealt with elsewhere in the Report.

The proportion of labour costs arising from each trade varies according to the nature of the work. In the case of housing, by far the most exhaustive analysis has been given in "Price Estimating for Building and Public Works," by Price Davies. A summary of the analysis of costs of three-bedroom parlour cottages from this source is given on page 59.

The most important point, however, is to consider what economies may be expected on these labour costs.

Effect of Mechanisation

In the first place it is necessary to draw attention to the fact that reduction in labour costs by increased mechanisation will not of itself increase unemployment in the building industry. In the case of products such as violins, the demand for which is inelastic, unemployment would be increased by mechanisation. In the case of building the market is almost unlimited provided costs can be reduced to a sufficiently low level, and the industry has scarcely even begun to try to increase demand, to make people want better houses, and to renovate existing property. The efforts which have gone into increasing the demand for motor cars should be compared with the efforts expended by the building industry itself to make the country dissatisfied with slums, or even with houses without baths or any other of the many possible conveniences now available.

Throughout the summer of 1934 there has been a virtual shortage of bricklayers in London and certain other counties, although the annual production of houses has not yet reached half the proposed Government figure.

In short, the objections usually advanced against the reduction of employment by mechanisation do not apply to building, provided that the industry as a whole pursues an active rather than a static policy.

The following notes are not intended to be exhaustive but rather to suggest lines of enquiry.

Excavators and General Labourers

On large contracts the adoption of mechanical methods has of late years been greatly increased, and British technique in this respect is probably nearly as far advanced as American. On small contracts there is very little scope for this, and economy can only be looked for through more careful consideration of the placing of raw materials. The dumping of bricks in one large pile to serve three or four cottages, to which they are shifted in hods and barrows, is still common. The possibility of delivery in skips and containers and the general adoption of modified trucking systems, such as are always used in factories, has not been considered to any extent. The use of a hod on even small work is, on the face of it, likely to be uneconomical, and there is room for investigation of alternatives. Barrow design has undergone great change in factories, but the navvy barrow in common use has not changed at all. The utilisation of truck mixers for concrete and mortar is now common abroad, particularly in Sweden and America, and some study of the possibilities of increased use of this system, either for whole towns, or perhaps for individual housing estates, is worth consideration.

Bricklayers

The English custom of serving bricks and mortar on the level of the working platform necessarily increases fatigue and means that throughout most of the day the bricklayer is working at other than the most convenient height. Suspended, instantly adjustable, scaffolding cannot be used except on steel frame structures, but some enquiry might be directed to the value of a two-level platform, serving material at hand height. In fact there is an urgent need for the general application of the results of enquiries into fatigue and motion study such as have been carried out in most other industries and never yet attempted in the building industry. That the idea is not new is shown by the work which Galbraith carried out on the subject in America before the war.

It may be objected that any attempt to set in motion enquiries on these lines would be bitterly resented by the operatives. Whether this would in fact be the case can only be proved by trial. Under the present system of irregular short-term employment amounting almost to casual labour, we believe that such an attitude is justifiable. When, however, permanent employment could be offered, many of the customary objections on the part of labour would be willingly modified. If the building owner is to get cheaper and better building, it is only right that he should offer something in return, and the abolition of casual employment would be at least as advantageous to him in the long run as to the operatives.

Slaters and Tilers

Some consideration as to the need for the usual specification of nailing plain tiles seems desirable. The traditional Sussex barn, open to the weather, was composed of tiles solely hung on pegs and never nailed, and stripping by wind is unheard of. The service of materials also needs consideration. For a labourer to carry from fifteen to twenty tiles at a time on his head from ground to roof is not necessarily the most economical system, although it is still almost universal in housing.

The main opportunity for profitable investigation, however, lies in the possibility of increasing the use of large single-cover interlocking tiles of the *Marseilles* types. These reduce laying costs by 40 per cent or more, and introduce further economies by reason of reduced weight. Large quantities were at one time imported, but by reason of the recent Empire preference requirements on Public Authority contracts, and the effect of "Buy British" propaganda on private contracts, their use has been greatly reduced. Despite this limitation of competition and the imposition of duties, production of large interlocking single-cover tiles is still negligible in England. For other than housing purposes the use of large sheets, either asbestos, corrugated steel, or protected metal, is now common, and the development of a similar covering for housing, not open to aesthetic objections, would show large savings.

Carpenters and Joiners

The factory production of units in this section has gone further than in all others, and very little improvement in this respect can be suggested. Ultimately it may be possible to make a door and frame fit in the factory, but at the moment the various schemes have not sold well, and it still remains necessary to make the door too big and cut it down on the site. Adequate drying of buildings during erection, which has long been customary in America and Germany and has recently been tried by one or two speculative estates here, would reduce the costs of making good shrinkage and generally going back over the work. Should timber buildings be erected in any number in rural districts, considerable economy could be obtained by factory production, as is shown by the costs of the firms making mass-produced portable buildings.

Some notes in connection with research into the design of ironmongery and its relation to joinery are given in the section dealing with cost reduction.

Plasterers

Further consideration is needed in connection with one-coat plaster. Despite the work of one or two firms, this is still not widely adopted, and is barely past the experimental stage. The use of wall-boards, when cut and waste is considered, is not yet strictly comparable with plaster in price, although if the expected fall in price of the former should occur the position may change. Considerable attention should first, however, be directed to the relative risk of infestation by bugs of wallboard and plastered houses, as the position is not at all clear. The use of a really thin cheap plywood for ceilings is definitely more economical than plaster, and was demonstrated in the Building Centre houses erected at Aldwych with great success. Unfortunately, the bulk of subsidy housing is limited to Empire materials, and plywood of this type cannot be obtained from within the Empire. A partition slab which does not need plastering is urgently needed, and from claims made it would seem to be an early possibility.

Electricians

The introduction of tough rubber (C T S) cable buried in concrete or plaster and without conduit would seem to offer opportunities for economy, and it has already been used by the L C C The re-design of minor fittings such as switches and lampholders to allow quicker wiring, and the provision of combined back plates for all fittings at the intake end, are fields only recently opened up for consideration

Plumbers and Gas Fitters

Certain speculative builders have been able to show great advantages by utilising standardised pipe work set to templates in the factory, and the new sweated joints with light gauge copper tube should show considerable advantage over the usual lead and iron combinations, both in first cost and in life The regular adoption of one pipe and one stack systems, where applicable, will considerably reduce costs They are, however, as yet illegal in most districts

Painters, Decorators and Glaziers

For housing work very little economy in labour can be looked for The use of spraying apparatus may be possible, but the small areas available do not hold out any hope of great savings The use of stains instead of internal paint on joinery is already common Appreciable economies in first cost can be obtained by using large instead of small panes of glass, but the ultimate success of this must depend on the form of lease—whether landlord or tenant pays for breakage

To sum up, there is a virgin field for investigation, hitherto untouched even on the fringes, of the economic utilisation of labour and reduction of fatigue in the sense that the more up-to-date industries have dealt with the matter At the moment, there has been no attempt to apply this section of production technique to the industry Before such work is started, however, it is essential that some organisation for collecting and publishing the results must be set up From the point of view of the industry as a whole it is useless for one firm to experiment on the design of tools or plant, or the utilisation of labour, because the results are not made available, and one firm alone cannot usually afford to set out to train the necessary operatives to make use of the improved system, as can be done in, say, the motor industry The position would, perhaps, be altered if constant work could be found by the firm for all the men employed, but the recent tendency has been rather towards increasing the proportion of casual employment

TRAINING AND RECRUITMENT

(1) Characteristics of Labour in the Building Industry

Labour in the building industry may be divided into (a) skilled and (b) unskilled This second group must be further sub-divided into (1) those who are in fact semi-skilled and are in practice closely attached to particular crafts (e.g. the bricklayer's or plasterer's labourer, and the plumber's or fitter's mate), (2) those who, while also semi-skilled, are not directly working as assistants to other crafts Examples are concretors on reinforced work, bar benders and erectors, labourers engaged in certain types of structural floor laying, and certain classes of scaffolders and timber men, (3) wholly unskilled men employed mainly in handling materials on the site, clearing up, and the rougher forms of general labouring These form a very small proportion of the total

It has been noted elsewhere that all these semi-skilled and labouring men are actually rated similarly for pay There are occasions where slight additions to pay are granted, examples being the extra payments for scaffolders in some districts These extra payments arise more commonly in connection with men in class (2) above It should once more be stressed that these groups of labourers, although they depend to a large extent on bodily strength, are, in fact, with but few exceptions, possessed of considerable skill and knowledge of their trade

The reduced public demand for intricate and ornate applied decorations, and changes in technical methods and organisation, have diminished the demand for certain of the highest forms of craft skill Thus, for example, elaborate carving and modelling in stone, wood, terra cotta or plaster is now very little used, and the introduction of machinery has reduced the amount of employment for joinery bench hands and banker masons The use of ready-mixed paints has made it possible to employ, throughout any but the most important jobs, painters with a very inadequate knowledge of their craft Against this, however, must be recorded the evolution of what amount to completely new trades not known 50 or 100 years ago It may be said, with some certainty, that there are now twice as many separate trades represented on an important urban contract as would have been employed on the erection of a building on the same site at the time of granting the last building lease 99 years before This increase may even have occurred in some districts since the date of apprenticeship of men still

working in the industry. Many of these new trades demand a knowledge of science and "book-learning" much greater than the old trades, although the manual dexterity may be less. Electricians are an example of this. There is no doubt that the number of employees in these new trades more than compensates for those displaced by the introduction of machinery in the older trades, and the decreased use of certain types of work. While, on the face of it, this is a satisfactory state of affairs from the point of view of the industry as a whole, it should be noted that it is little comfort so far as the individual is concerned. Those displaced are mostly the older skilled men, and for a fully qualified craftsman to change his craft is practically unknown in the building industry. The entrants to the newer trades are normally younger men, either specially trained for the work or coming in from allied industries. In some cases, where the degree of skill is not high, they may be upgraded from one of the labouring groups, particularly from among the unattached semi-skilled men.

Mention must be also made of an unexpectedly large class of men described as handy men, who undertake almost any job likely to arise in house maintenance and repair work. They are totally unorganised, and their remuneration varies as widely as their skill and their training. Whilst no responsible firm of contractors would employ a man outside his own craft, men who will tackle almost any job appear to carry out quite a large part of the work of maintenance of the poorer types of dwelling in industrial and provincial towns, and on country estates. Commonest in connection with painting and roof work, minor brickwork and plastering repairs, they rarely tackle full-scale plastering or lead pipe work. In most cases their origins are obscure; some have been in the Army or Navy, many were semi-skilled labourers, a few craftsmen, a few trainees from some older scheme, and a surprising number seem to have attempted to trade previously on their own account with little success. While they are unpopular with organised employees and employers alike, and while in many cases their workmanship is of the poorest sort, it is difficult to see quite how some of the necessary jobbing work could be done without their aid. It is often impossible to send three or four craftsmen to a house where there is only an hour or two's work for each. It seems impossible to suggest any scheme of organisation or proper training for men of this class.

Little mention can be made in this report of clerks, timekeepers, draughtsmen, and office workers. They form an important section of the industry, but they are almost wholly unorganised, and there are no statistics available as to their number or wages, and little information as to their training.

(2) Source of Recruitment

There appears to be no well recognised national organisation to control recruitment into the whole industry, based on *national surveys* of probable labour requirements. Such schemes as there are do not generally cover more than one craft in one district, and are mainly concerned with Trade Union labour. The number of non-Union entrants depends upon the strength of the Unions in a particular area. The initiative lies largely with the prospective worker, and engagement, particularly in the first instance, takes place mainly as a result of personal application, preference often being given to relatives of employees. In some country districts, until the War, it was the long-accepted custom of the employers to make arrangements for the adequate supply and training of apprentices, but the custom in many places has largely fallen into disuse, and no deliberate arrangements are now made for training a future generation.

Generally there appears to be an adequate supply of entrants to the industry, but owing to the comparative shortage of labour in London and district a number of building labourers and some skilled workers are recruited from the provinces. There has been a considerable influx of the unemployed from depressed areas, who have found building labourers' jobs (frequently below standard rates) on small housing projects in the Greater London area.

(3) Industrial Training

According to an estimate,¹ now several years old, the distribution of young workers (under 21) in the building industry in 1925-26 was as follows.

Apprentices under written agreements	21 0
" " verbal "	40 0
Improvers	15 0
Young labourers	24 0
	100 0

No more recent estimate is available, but there is no reason to believe that the position has altered materially.

¹ Ministry of Labour Report on Apprenticeship Vol. II, 1927.

A Apprenticeship

(a) TYPES

Premium apprentices are seldom found to-day. The Ministry of Labour enquiry referred to above found that only 2.4 per cent of the total number of apprentices under written agreement paid premiums. These were mostly in London and some small towns in the South of England.

Indentures, in the traditional sense of the term, are also uncommon, but a fair number (over a fifth in 1925-26) of building trade workers under 21 are bound by written agreements. The terms of these agreements usually cover period of service, wages, hours, overtime, holidays, and attendance at technical classes. They do not necessarily include an undertaking to "teach and learn."

The most common form of agreement appears to be a verbal one. Verbal agreements usually imply an undertaking to observe the traditional usages of the craft. They are seldom very explicit.

It was at one time customary for employers to keep on apprentices even when there was no work for them, although indentures did not usually contain any binding clause to this effect. This custom is, however, now almost obsolete, and the present position is, in effect, that the apprentice is bound whereas the employer is not. It should be observed that an apprentice with no more security of tenure than a journeyman, and with small wages or none at all, is not in a very satisfactory position.

(b) PROPORTION OF APPRENTICES TO JOURNEMEN

According to the Ministry of Labour enquiry there were in 1925-26 4.4 journeymen to each apprentice in the building industry.

The proportions varied greatly as between different trades and different parts of the country.¹

Thus, for example

	No of Journeymen per Apprentice
Plumbers	2.2
Masons	5.7
All crafts	
Scotland	2.7
Northern Counties }	
London	15.2

(NB—In London the proportion of improvers and young journeymen from the provinces is very high.)

(c) AGE OF APPRENTICESHIP

Apprenticeship commences at different ages in different crafts and in different parts of the country.

In Scotland, Northern Ireland and the four northern counties of England, apprenticeship usually commences at 15 or 16. In Yorkshire, Lancashire and Cheshire usually at 14.

In the Midlands, London and South the outdoor trades (bricklaying, masons, slating and tiling) usually start apprenticeship at 15 or 16, but the indoor trades (woodworkers, plumbers, electricians, etc.) tend to start rather earlier.

(d) LENGTH OF APPRENTICESHIP

The old 7-year apprenticeship appears to be dying out. Five-year apprenticeships are now most common, though some still go on for six and seven years.

(e) WORKSHOP TRAINING

It is the usual practice for most firms to train their apprentices in the workshop, where this is possible, allowing them to practice use of tools on spare or waste material. Some employers place workshop, tools and material at the disposal of boys after working hours.

In outdoor trades, where workshop training is not given, and where trainees commenced at a later age, it is usual for boys to learn the use of tools on the job under supervision of journeymen. Special arrangements for the training of apprentices are rare. It is the usual thing for an apprentice to act as a journeyman's mate. Only in rare cases is a journeyman wholly devoted to training apprentices.²

¹ See note on Trade Unions below.

² The term journeyman here means a skilled worker, i.e. men other than labourers, apprentices, and improvers.

B. Improvership

Improvers may be of two types

(i) "Ex-apprentice improvers," i.e. youths who, at the conclusion of their term of apprenticeship, are required by their employer to serve a further period as improvers before qualifying for full journeyman's wages. (About one-third of apprentices have to serve as improvers, usually for 12 months)

(ii) "Learner-improvers" drawn either from boy labourers or directly from technical schools. Three out of every four improvers in the building industry are of this type

"Learner-improvers" are hardly to be distinguished in many cases from apprentices under verbal agreements. They are given facilities to learn their craft, but there is no definite agreement as to period, wages, hours or conditions. The progress of learner-improvers depends entirely on the ability they display

C. Young Labourers

Young labourers in the building trades receive no training except what they pick up by watching and helping others. As they grow up they become adult labourers or, if they are lucky, they may be "up-graded" to skilled work by an employer who is not particular about abiding by craft usages or trade union agreements

D. Tools

It should be noted that building craftsmen, in common with skilled engineering fitters and cabinet makers, are required to provide their own tools. Customs of the trade in this respect vary from district to district, and govern, sometimes in detail, the tools to be provided by the master, and the arrangements for repair and sharpening of those provided by the men. The extent of the kit to be provided varies according to the trade. Labourers generally provide a shovel, particularly outside London, and in some country districts a pick, although the doing-out or re-steeling of this is commonly done at the expense of the employer. The employer normally provides hods, ladders, and other tools required

Painters often provide no tools, and rarely more than dusters, screwdriver, hammer, pliers, and scrapers, and in the case of superior men undertaking glazing and paper hanging, a diamond and trimming scissors

Bricklayers provide all hand tools and short levels, although in some cases special arrangements are made as to long chisels

Plumbers provide all hand tools, including pipe cutters, but rarely stocks and dies, metal pots and similar heavy items

Joiners provide the largest kit of all, including all hand tools, except cramps and grindstones. The value of a good tool kit for a joiner, working both at the bench and outside, is considerable, generally exceeding £20 to £80. The risk of loss by theft is great, and insurance rates for both theft and fire are almost prohibitive, when taken out by the men. Employers sometimes insure the tools of bench hands against fire, but not against theft

Even a bricklayer's kit may cost up to £5. There were often arrangements made under apprenticeship schemes for the employer to provide some or all of the tools, or to allow time, at any rate, to joiners to make those which could be made in an ordinary shop

With the dropping of these customs, the problem of finding tool money must be a serious one where entrants come from the poorest section of the community, and particularly where parents are unemployed. The ease with which tools may be pawned has also often made it difficult for men to start again after a prolonged spell of unemployment.

Certain large employers, notably many Gas Companies and the Post Office Engineering Department, now provide complete tool kits on loan, and there are in some districts special arrangements in force, sometimes in connection with educational schemes, for help to be given in the provision of tools, but the problem is one which requires further survey and the setting up of some common system throughout the country

(4) Technical Education

New entrants to the building industry come in the vast majority of cases straight from the elementary school. Only a very small number of firms prefer boys from senior technical schools, but the development of junior technical schools is giving increasing opportunity for a certain degree of training before entering the industry

The following types of institution provide facilities for technical instruction relating to the building crafts (figures are for England and Wales)

- (i) *Junior Technical Schools* (including "Trade" schools) These schools provide courses for boys between the ages of 13 and 15 seeking to enter various technical occupations. In 1932-33 there were only 755 boys taking courses preparatory to entering the building industry
- (ii) *Senior Full-time Technical Schools and Colleges* These schools provide full-time technical instruction for students over 16. There were in 1932-33 some 409 youths, under 21, taking building courses. Since these classes take place in the day time, they can only be attended by those who are comparatively well off, and, in fact, the students tend to come from lower middle class homes. Many who have been through these classes spend a short time after leaving on manual work gaining experience, and then take lesser managerial posts. Others go straight into office work, taking jobs as order clerks and in estimating and draughting offices
- (iii) *Part-time Day Courses* in senior technical schools and colleges and day continuation schools. In 1932-33, part-time courses were attended by 2,715 boys engaged in the building trades who were released by their employers, usually without loss of wages, as part of their apprenticeship training. In London, Brighton, Salford, Plymouth, and other towns excellent schemes are now in operation, agreed by the local building employers, the trade unions and the local education authority, for dovetailing apprenticeship and technical training both in day and evening classes. The scheme is similar to those operated in other industries, but the proportion of boys undergoing training to the total number of persons engaged in the industry is much lower in the building industry. For instance, in 1932-33, in the engineering and allied industries, where total employment is less than half that in the building industry, 5,971, or nearly three times as many boys were undergoing trade school training. In the printing, book-binding, and allied industries, employing only about one-quarter the number of persons, 2,547 boys were being trained in this way—nearly as many as in the building industry. Such schemes of training are only practicable in districts where it is possible to get together sufficient part-timers to make up a reasonably large class
- (iv) *Evening Technical Classes*. Over four thousand evening classes for young building employees were held in evening institutes and technical colleges in different parts of England and Wales in 1932-33. There were 1,408 classes in evening institutes with 20,712 registrations. These classes were designed for boys leaving the elementary schools, and usually they were part of a two-year course, embracing a group of subjects. As most boys would attend two or three evenings a week, it is probable that the actual number of boys affected would be between seven and ten thousand

There were also 2,887 evening classes for senior students (16 years and over) in technical colleges, with 50,759 registrations. The actual number of youths affected would probably be between 17,000 and 25,000

Examinations

Examinations of proficiency in building trade subjects are held under three systems (1) Internal examinations by the authorities mentioned above, (2) External examinations, the results of which are still mainly of local interest, and (3) National examinations

(1) These examinations, the standard of which varies greatly, are taken mainly as part of the system of education, although naturally they can be used as evidence of having attended the classes in question when so required by employers

(2) These examinations are on a somewhat wider basis, and the standards are both more widely known and are on the whole more uniform, but their recognition is still mainly local. They are held by such organisations as The Union of Lancashire and Cheshire Institutes, Union of Educational Institutes, East Midland Educational Union, Northern Counties Technical Examinations Council, Surrey Educational Committee, etc

(3) The need for examinations on a national standard has long been felt. The Institute of Builders holds professional examinations on such a basis, but they are mainly of interest to those who are likely to enter managerial positions, and do not affect craftsmen. The Institute of Plumbers holds technical craft examinations, the results of which are recognised nationally, and the general building trade examinations of the City and Guilds of London Institute, while most widely known in London, also have a high reputation throughout the country. There are also several other nationally-known examinations, particularly in connection with sanitary engineering, which admit craftsmen, but on the whole they are mainly taken by men anxious to enter office employment

In order to meet the need for a more widely acknowledged series of examinations, the Board of Education, in conjunction with the Institute of Builders, set up, some three years ago, a system of examinations providing National Certificates of proficiency in Building. The certificates are granted on the record of the students' general work as well as on the examination results. The following figures for 1933 show that they are not yet very widely used.

	Candidates	Passes
Part-time Courses		
Ordinary	595	385
Higher	188	145
Full-time Courses		
Ordinary	23	14
Higher	17	16

Apart from the need for setting up a national standard, there is a very great need for setting up a system of refresher courses for trade school lecturers at the Building Research Station. Much of the teaching still omits to take account of the results of recent research, and is all too often based on out-of-date text-books. Such courses are already common in many educational fields, but the employment of part-time lecturers for technical subjects has made it more difficult to arrange for such a system in building trade schools. Courses are held from time to time, but there is no regular connection between the courses and the research stations.

As in the case of most technical examinations, it is possible to criticise the standard attained. For those who are intending to remain as craftsmen it may be said that the amount of book-learning required is excessive, while for those who take up office work it is possibly the reverse. Such criticism was heard less in the past, when the trade was solely a matter of tradition. The long established and well tried apprenticeship system was required to produce comparatively few types and to cover a much narrower field. As a result, the problem was a simple one, but with the change in conditions it must take many years to work out a scheme which will be equally suitable and acceptable to all parties. For this reason, statements as to the efficiency of the apprenticeship system are not always wholly defensible. The efficiency, even if high in the past, must become proportionately lower as the industry becomes less and less a matter of tradition.

Most employers encourage their young employees to attend technical classes in some way or another. Some are content with distributing handbills or exhibiting posters advertising the courses. Others, as stated, allow time off, usually with pay. A good many pay class fees, and some pay fares. A small number insist on attendance as a part of the apprenticeship agreement. Prizes and bonuses are also given, and special assistance in the way of technical books, tools and instruments in a few cases. A few firms arrange special classes in their own workshops by arrangement with the local education authority.

In spite, however, of the imposing array of facilities already in existence, it appears that there are still areas without convenient facilities, and that some employers do not encourage their young employees to attend classes.

This change from apprenticeship to school training, which will inevitably tend to become more marked as time goes on, must cause exceptional difficulties in smaller towns and country districts. In the past there seems to have been a steady drift of skilled men, apprenticed in the small country yards, to the big towns. It is quite impossible to set up schools in those places where there are less than about ten pupils in any one trade at about the same stage of their training, and while some further grouping of districts could be undertaken, and probably help given towards the cost of transport, the time lost in travelling places a limit to the extent of grouping possible. As will be seen from the above figures, the majority of training is in the form of part-time or night school classes, and it is exceedingly difficult to arrange travelling facilities to fit in with class times, so that all pupils from widely scattered districts can arrive and leave at given times. Moreover, one of the perpetual difficulties in connection with part-time school training is the question of fatigue, and any travelling must make this materially worse.

It seems, therefore, that unless some means can be found to encourage a drift of town-trained men to the country, a noticeable shortage of skilled labour is likely to arise in the more isolated districts. This will not occur where there is exceptional building activity, as, for instance, on the south coast at the present time, but it will be sufficiently widespread to make the problem worth careful study. To

increase the drift into the country by wage increases and general district up-grading is not very likely to be effective. The objection to country conditions is not based so much on lower wage rates as on the general lack of social amenity, and the generally spasmodic nature of employment where there are few employers and an irregular volume of building

It would, perhaps, be wiser to attempt to repopularise some modified form of the old type of apprenticeship in districts where it has fallen into disuse, in connection with a scheme on the lines of the Cambridgeshire Education Authority's "Village Colleges," the first of which has been in operation for some time. Such a scheme would make it possible for apprentices to obtain the necessary school training to supplement the shop training by utilising travelling teachers, the employers allowing absence for comparatively long consecutive periods when the teacher was in the district.

(5) Trade Unionism and Recruitment

There is no national apprenticeship scheme covering all localities and crafts, but regional schemes, modified by special craft rules, cover most of the country.

Only trade unions covering workers in particular crafts include, among their rules, regulations governing the conditions of apprenticeship. The national craft unions usually have less comprehensive rules than unions covering a particular locality. Scottish unions usually have more detailed apprenticeship rules than English unions. Apart from formal rules many unions observe traditional practices almost as effectively.

It is impossible to summarise the wide range and variety of trade union rules and usages relating to apprenticeship. They cover, *inter alia*

Age of entry	Usually fixed as "not later than 16"
Length of Apprenticeship	Most unions—5 years, sometimes with the provision that it shall not terminate before 21
Improvership	Not usually recognised
Limitation of number of apprentices	Varying rules, from 1 to 2 to 1 to 6, in different parts of the country (N.B.—See Government Housing Scheme below)
Wages	Usually fixed as proportions of full journeymen's rates

The unions are strongly opposed to "up-grading" labourers and other forms of skilled labour dilution.

(6) Examples of Organised Apprenticeship Schemes

The following are examples of organised apprenticeship schemes of four types

- (a) A regional scheme (operated by a Regional Joint Council of the Building Industry),
- (b) A national craft scheme (operated by a National Joint Council for a particular building craft),
- (c) A local scheme (operated by the local apprenticeship committee of the building industry meeting under the auspices of the Local Advisory Committee for Juvenile Employment);
- (d) The arrangement under the Government Housing Scheme 1924

(a) Regional apprentice scheme of the Northern Counties Joint Council for the Building Industry

"Apprenticeship Committees shall be established on the lines of the National Recommendations in each mutually agreed centre, for the control, training, and registration of apprentices, and to secure the advantage of the facilities for technical instruction

"Where existing committees, on a local or regional basis, are adequately dealing with same on craft lines, they shall continue, and report annually to the appropriate Local Council on the Regional Council

"The following Rules shall apply to all apprentices, and be observed by the various Committees

"That all apprentices be bound for a period of not less than five years, and that three months' trial to each apprentice be allowed. In no case shall an apprentice be out of his time until he is 21 years old

"That proper registration of apprentices entering a trade be made by each Committee, and such restrictions as to the number of apprentices as may be agreed upon between the Employers' and Operatives' organisations in any section of the trade, and endorsed by the Regional Joint Council, shall be strictly adhered to

"That no improvers shall be recognised

"That rates of pay to apprentices shall be uniform in each section of the trade, and in accordance with the following scale:

Years of age	Proportion of Journeyman's rate
Until 16	one-eighth
16-17	one-sixth
17-18	one-fifth
18-19	one-fourth
19-20	one-third
20-21	one-half

"Employers' sons and premiumed pupils working at the different sections of the trades with a view to gaining experience of the Building Trade shall be exempt from this Rule"

(b) *Apprenticeship Scheme of the National Joint Council for the Plastering Industry*

This new scheme provides for a seven, six or five years' apprenticeship, according as the starting age is 14, 15 or 16 years, concluding at the 21st birthday. During the first two years of apprenticeship the employers will allow the apprentice one whole day or two half-days per week without deduction of wages to attend day technical classes, the apprentice is also bound during the first four years to attend evening classes on two days a week in his own time. The scale of wages to be paid is in the first year 12½ per cent, second year 15 per cent, third year 17½ per cent, fourth year 22½ per cent, fifth year 27½ per cent, sixth year 85 per cent, and seventh year 60 per cent of the journeyman's rate for the time. A standard form of indenture is in use.

(c) *The Southampton Building Apprenticeship Scheme*

The following scheme is reported to have been prepared for Southampton, and is an example of what would appear to be a satisfactory system. This provided that apprentices should be bound by indenture for five or six years, after a probation of not less than three months nor more than 12 months, no boy being indentured until 15 years of age. The scale of wages provided for was, in the first year one-eighth, second year one-fifth, third year one-quarter, fourth year one-third, fifth year one-half, and sixth year two-thirds of the standard rates for journeymen. All apprentices were to be bound during the first two years of apprenticeship, to attend during the employer's time a day technical school for one whole day or two half days every week without deduction of wages, and also to attend evening classes for two evenings each week.

During the third and fourth years, attendance at technical classes was to be required for one whole day and one evening per week. Three examinations were to be taken at intervals during apprenticeship and a certificate of proficiency obtained.

(d) *The Government Housing Scheme 1924*

In order to provide an adequate supply of skilled labour for the carrying out of the scheme of the Housing (Financial Provisions) Act 1924, a scheme of apprenticeship was recommended by the National Building Industry Committee, a Committee which was set up for the purpose of advising as to the best methods of securing the necessary augmentation of the skilled crafts in the Building Industry.

The revised scheme provided for the temporary waiving of the restrictions as to the number of apprentices which any one employer might have, so long as the total number of apprentices in a given district, when compared with the total number of craftsmen in that district, did not exceed the ratio prescribed by existing rules.

It was provided that a clause should be inserted in all housing contracts with local authorities by which the contractor was required to employ, under indentures of apprenticeship or other written agreements in a form approved by the Local Committee, a number of apprentices not less than one-third of the building trade craftsmen employed by him on or in connection with his contract for houses, provided that he should not be required to employ such a number of apprentices as would make the total number of apprentices employed for the time being in the area of the Local Building Industry Committee exceed one-third of the building trade craftsmen in that area. Provision was made for the extension of the age limit (usually 16) at which apprentices might be accepted to 20 years, and for the introduction of adult apprentices from the ranks of the men with experience of the building trade (e.g. labourers). All apprentices had to be indentured and registered with the local Building Industry Committee.

(7) Training Schemes for Unemployed

There has recently been much discussion on the possibility of providing short periods of training for unemployed from the depressed areas to enable them to enter the relatively prosperous building trade. We have not been able to find any exact details of the schemes or figures of the number of men it is proposed to "train," but obviously it would be impossible to provide a training of equal thoroughness and duration to that common under the existing organisations giving entrance to the trade.

While, from the point of view of the men trained it must be admitted that the scheme offers vastly increased hopes of future employment, it must also be admitted that there is some justification for the suspicion with which it is viewed by the older craftsmen. If a long-term housing policy could be agreed upon, much of the objection to the idea could be overruled. In an industry, however, which has fluctuated between boom and slump so frequently and so rapidly in the lifetime of the present generation, it will need more than vague promises of continuity for such forms of dilution to be accepted. Objection has also been made, with some justification, to the inadequate time given to training. The men now in the industry are in the main highly skilled, and they have, themselves, expended much time, effort and money to learn their trade, and it will indeed be unfair if others, with their training provided largely at Government expense, with much less skill, and little respect for the best tradition of the craft, step in and compete on equal terms. It will be still more unfair if they compete, as seems to be the case on some housing work, at less than the recognised rates of pay. A sound argument can be advanced that the present periods of training are unduly long, particularly for men entering the trade as adults, but it cannot be argued that customary skill can be acquired in the time allowed on the Ministry schemes, and any reduction in the general level of skill in the trade must be detrimental alike to employers, employees, and to the building owner.

It should be noted that such schemes as are in force to regulate recruitment to the industry are generally joint arrangements between purely local employers' organisations and unions, and they are not based upon more than local surveys of needs. Neither do they appear to be able to govern in any way entrants from areas where organisation is weak, or those taking jobs on the speculative work on the more important suburban sites, where the fully union job, worked strictly to rule, is not by any means universal. This unregulated influx could, in a period of unusual activity of reasonable duration, be quite sufficient to wreck the organised systems of recruitment. There seems, as mentioned above, to be considerable need for some national agreement to cover all districts if a regular flow of entrants is to be obtained in the future.

(3) MATERIALS

BRICKS

Bricks constitute from 15 to 25 per cent of the total materials cost of working-class houses. Bricks and bricklayers' wages together constitute up to approximately 81 per cent of the total building cost.

Types of Brick

There are various methods by which bricks may be classified, such as the use to which they are put, the process or locality of manufacture, texture, colour or other dominant characteristics. The most general classification is by use, and under this heading bricks may be divided into three types: common, facing and engineering. Common bricks, which constitute the bulk of the output, are used within the structure, while facing bricks, whether possessing a special finish or not, are devoted to exterior work. Engineering bricks, which are of exceptional strength, are used where heavy loads are required to be carried. They are also used for damp-courses and in other situations where impervious bricks are required.

Classification according to localities is also widely, though loosely, used in this country. "Flettons," so called after the town of that name, which are the cheapest clay brick to produce, and constitute about one-third of the total output, are made mostly in the Peterborough area, from the Oxford clay which is worked roughly from Bedford to East Lincolnshire and in the neighbourhood of Bletchley.

Bricks are also divided according to the method of manufacture: first, hand or machine-made, and secondly a division of machine-made bricks according to the nature and treatment of the clay, e.g. plastic, plastic wire-cut, stiff plastic and semi-dry pressed. The term "Fletton" is often, as stated, used to mean a brick made from Oxford clay, but has also come to mean a brick made by the semi-dry pressed process. For the purpose of this report it is used in the former sense.

The term "Stock" is also used in more than one sense. Originally it applied solely to a brick in which the fuel is mixed with the clay and which is burnt in a clamp. The term is now sometimes loosely applied in the north of England to what was formerly called a "Common." The "London Stock" is a hand-made clamp-fired brick, yellow in colour and having exceptional weathering properties. It has been, until very recently, the traditional facing brick for the London area, and until the introduction of "Flettons" was almost the only building brick. Although normally hand-made, chiefly around Sittingbourne in Kent, Shoeburyness in Essex, and Slough in Buckinghamshire, one or two works have recently been mechanised, and carry out the firing in tunnel kilns.

Apart from London Stocks, examples of other facing bricks are the kiln-fired Thames Valley multi-reds, the Sussex Stocks and the surface-textured machine-mades of the Midlands and North. The best-known engineering bricks are "Staffordshire Blues," and, to a lesser degree, the red Lancashire, brown North Wales and Sussex types.

Production of Bricks and Average Size of Brickworks

The following data relating to the brick industry have been taken from the reports of the 1924 and 1930 Census of Production and exclude firms employing less than 10 men

	1930*	1924
Production (no)	4,418 million	3,897 million
" (value)	£10 8 "	£11 1 "
Exports (no)	8 3 "	5 9 "
Net Imports (no)	202.1 "	85 0 "
Consumption in U K. (no)	4,612 8 "	4,145.2 "
Net Output per man (value)	£201	£209
Average Price (glazed)	£17.71 per 1,000	£20 84 per 1,000
" " (other)	2 37 "	£2 76 "

* 1,187 firms

The production figure for 1924, including small firms, was 4,066 million, showing that firms employing less than 10 men contributed 168 million or 8.5 per cent of the total. If small firms contributed the same percentage in 1930, the total production for that year would, therefore, be about 4,600 million.

It is difficult to give any estimate as to the division of output among different types of brick, but the following figures may be taken as a rough guide.

ESTIMATED OUTPUT IN 1930 (millions)

Common bricks:	
"Flettons"	1,600
of which London Brick and Forders	1,200
Others	1,600
Total	3,200
Facing bricks	
London Stocks	400
Others	500
Small works (probably mostly facing bricks)	200
Total	1,100
Engineering bricks	800
TOTAL	4,600

Imports of bricks into the United Kingdom during 1931-33 were as follows

UNITED KINGDOM IMPORTS OF BRICKS, 1931-33 (millions)

1931	185
1932	75
1933	237

Over 90 per cent of the imports come from Belgium, where there is a notable concentration of output round Boom, near Antwerp.

The average price of imported bricks during 1933 as obtained from the trade returns was 85s. per 1,000 ex-wharf but excluding customs duties, the gross price therefore, with the 10 per cent *ad valorem* duty added, becomes 88s 6d per 1,000. The price paid by builders for Boom (imported) bricks during 1933 varied from 42s 6d to 45s per 1,000, the difference between this price and that revealed by the trade returns being probably accounted for by importers' overheads and profits.

The Census returns given above show two prominent features: the first is the decline in the net output per employee from £209 in 1924 to £201 in 1930, and the second is the comparatively small unit of production, the average output in 1930 being 3.5 million, neglecting firms employing less than 10 men. When it is considered, at the same time, that one firm, London Brick Co & Forders, Ltd, had an output in 1930 of 1,200 million, it can be seen that the average output of the remainder is very small in comparison.

Net output per employee depends largely, of course, on the extent to which mechanical equipment is used, and the average size of brickworks is governed primarily by the potential market, which is, in turn, controlled to some extent by the economic radius of delivery. It is not usually profitable to deliver "Commons" a greater distance than about 80 miles, except to London, and the majority of brickworks, therefore, have to depend very largely on the local demand, which is, of course, very spasmodic.

Furthermore, the brick industry in general has since the war been subject to very wide fluctuations in demand, governed largely by periodic Government stimulation of building and periodic slowing down of building and public works activity owing to economy measures. A rough idea of these fluctuations can be obtained from the following figures of the number of houses built in each year since 1923.

TOTAL NUMBER OF HOUSES BUILT WITH AND WITHOUT SUBSIDY*

1923	78,788
1924	109,491
1925	159,026
1926	197,584
1927	273,229
1928	166,415
1929	204,857
1930	161,699
1931	194,944
1932	200,562
1933	212,011

* Houses having a rateable value above £78 (£105 in the Metropolitan Area) have been omitted.

Although when working at full capacity a fully mechanised works can produce bricks at a lower cost than a small un-mechanised works, a reduction of output by, say, 25 per cent will increase costs by about the same percentage, while a small, less mechanised works can obtain economies by dismissing a suitable number of men. Over a long period, therefore, medium or small works have in the past often been relatively more profitable because their losses in times of slack demand are much less. Even when an amalgamation of separate works has taken place it has often been the policy for production to be continued at the individual units rather than concentrated in one that has been fully mechanised and brought up-to-date.

An exception to the above remarks must be made in the case of the Fletton area from which millions of bricks are sent every year to London, but exceptional circumstances such as low production costs and favourable transport rates make this area unrepresentative of the country as a whole.

A convenient size for a brickworks under present conditions is one with a capacity of 10 million bricks per annum, although this is not sufficiently large for complete mechanisation for which an output of at least 20 million bricks per annum is essential. This output would also have to be maintained continuously for a period of 10 to 12 years in order to repay the initial capital expenditure.

An output of 20 million bricks would build 1,000 A3 cottages, which does not seem excessive, but it must be remembered that to be fully remunerative the plant must produce bricks for 12,000 such cottages within 12 years and that all these cottages must be situated within a reasonable distance or else competition from other works and high transport costs would reduce the net price to such a level as to leave no profit margin.

It can be seen, therefore, that there are few localities where fully mechanised works could be erected to advantage, although it must not be imagined that the present average size of brickworks is the optimum. There is no doubt, however, that while concentration of output, following amalgamations, would in many cases produce substantial savings, in the main attack on brick costs should undoubtedly come through the provision of a constant output and also, to a lesser extent, through reduction in transport costs.

Following the boom conditions in the brick industry during 1938, a number of amalgamations have taken place, and at the same time the capacity of some works has been greatly increased. The Yorkshire Brick Co., Ltd., has acquired four works in the North of England, and at the same time, in conjunction with Brick Investments Ltd., has secured control of Flettons Ltd. The latter firm has recently increased its capacity from 60 to 120 million bricks per annum. The Yorkshire Brick Co., Ltd., is, in addition, erecting a works near Bedford with a capacity of 100 million bricks per annum for the manufacture of "Flettons," and through its subsidiary, the Metropolitan Brick Co., Ltd., has obtained control of two more works in Northamptonshire and Middlesex. The Marston Valley Brick Co., Ltd., which manufactures "Flettons," has meanwhile increased its capacity by 50 per cent, and the erection of several other works in the same district is being undertaken.

There would appear, therefore, to be a definite possibility in the near future that the capacity of firms manufacturing "Flettons" will be in excess of average requirements, and unless demand is still further increased, an overproduction of "Flettons" is a strong possibility.

Other recent amalgamations include the acquisition by Allied Brick and Tile Works Ltd. of nine works situated mainly in the Midlands with a combined capacity of about 50 million bricks per annum. Compared with other combinations these works produce a high proportion of facing bricks.

Transport Costs

Although it is impossible to give any detailed figures it is certain that the proportion of the total output carried by rail has decreased in recent years owing to increased road transport. In 1929 about 5.7 million tons—say about 1,600 million bricks—were carried by rail, or about 85 to 40 per cent of the total output. A very large proportion of this total must have been accounted for by "Flettons" sent to London, but a surprisingly large amount was sent by rail for small distances, i.e. under 20 miles.

The rail rate to King's Cross from the Fletton area is 6s. 11d. per ton for 8-ton truck loads minimum, and assuming $2\frac{1}{2}$ tons per 1,000 bricks for "Flettons"* this rate is equivalent to 17s. 2d. per 1,000. The price of Flettons, which are quoted delivered King's Cross, is 51s. 8d. per 1,000, so it can be seen that transport costs constitute 84 per cent of the total delivered price.

Rail charges have been reduced by as much as 25 per cent on the Continent by perforating the brick and thus saving weight. This method is widely applied in France, Belgium and Switzerland, and is also popular in Germany and parts of the United States. It has not, however, made any substantial progress in this country partly on account of prejudice created by the fact that perforated bricks in the past have been poorly made and were technically unsatisfactory. This prejudice could, of course, be overcome, but it should be noted that perforation would not save transport costs by road, where the usual basis is volume and not weight, and at the same time perforated bricks cannot yet be made by the "Fletton" and stiff-plastic processes on account of technical difficulties.

The "Cellular" (cavity) brick made by London Brick & Forders is an attempt to produce a light brick by a different method in which the ordinary "Fletton" process is used. These weigh about 2 tons per 1,000, so that the transport cost to King's Cross is about 18s. 10d. per 1,000, but they are not yet used to any very great extent.

Road transport has the advantage that delivery can be made direct to the site, and this, of course, obviates any handling at the railway terminus, although the use of containers, which is developing to some extent for rail transport, overcomes this difficulty as well.

The average lorry load is about 1,000 bricks. The use of trailers could increase this to about 2,500, but they have not been very widely adopted. One firm has worked out the average rate of loading and unloading and the average speed of their lorries, and zoned their delivery radius according to the number of trips which it is possible to do per day. A system such as this offers scope for considerable economies.

* 5 lbs. 6 ozs. per brick.

It must be admitted, however, that the problem of transport costs is one that is difficult to overcome. The more extended use of containers would, perhaps, in time lead to the elimination of the extra percentage above the ordinary rate which is charged by the railway companies for their use, as the initial capital outlay for a flat truck, plus container, is not in excess of that for the ordinary truck now in use. The advantage of containers is that they minimize the risk of damage, reduce the amount of handling, and enable a road-rail combination to be used for delivery to the site.

Cost of Production of Bricks in Relation to Ex-works Price

(1) *Capital Costs* It may be roughly estimated that the capital required to establish a modern brickworks is £4,000 per million bricks capacity, including preliminary expenses, purchase of land, plant and machinery and working capital, although a small works of, say, a capacity of 8 million bricks would probably require a relatively larger capital. Thus the capital required for a unit of 10 million capacity would be about £40,000. The division of this capital cost depends largely on the type of clay that is to be worked, process used, etc., but it may be roughly assumed that about 60 per cent would go to plant and machinery, 8 per cent to buildings, and 15 per cent to working capital, the remaining 17 per cent being for land purchase and promotion costs¹.

It has been stated above that this capital should be amortised over a ten-year period, and on the basis of £4,000 capital per million bricks capacity, this involves a charge of 8s per 1,000 bricks. It may be observed that some older established works are capitalised on a much lower basis—London Brick & Forders Ltd on about £2,000 per million bricks capacity, while the capital cost of sand-lime brickworks is lower still—not much over £1,500 per million bricks capacity.

(2) *Operating Costs* The cost of brick production varies over the whole country on account of the widely different nature of the raw material used. Actual figures are difficult to obtain owing to the fact that many even of the larger works have no proper costing system, but it is known that the "Fletton" is considerably cheaper to produce than any other type except probably the sand-lime brick. This low cost of production is brought about by several causes, chief among which is the use of a process, not applicable to all clays, which obviates the necessity of drying the bricks, and the use of a raw material which contains sufficient combustible matter in such a form as to reduce considerably the quantity of fuel ordinarily used in brick kilns.

The normal works cost of "Flettons" is about 20s to 25s per 1,000, and the price on January 1st, 1934, 51s 3d delivered King's Cross, or, subtracting 17s 2d transport costs, 34s 1d ex-works. It can be seen, therefore, that after allowing for depreciation the actual profit margin is not as large as is sometimes supposed, but in the case of London Brick & Forders Ltd, owing to substantial writing-down in the past, the capitalisation on the basis of the balance sheet value of land, buildings, plant, machinery, etc., is, as stated above, under £2,000 per million bricks capacity. The large profits being earned by this firm at present have, therefore, to a considerable extent been made possible by conservative financial policy in the past.

Apart from the "Fletton," red (common) building bricks are manufactured by various processes according to the nature of the raw material used, as the process must be adapted to the material and not *vice-versa*. Consequently costs vary a great deal, and range from about 30s where conditions are favourable to more than 50s where conditions are adverse.

The average cost in the Midlands and North is about 35s to 37s 6d, and in the South, where fuel is dearer and other conditions tend to be less favourable, exceeds 40s.

The high costs of some works may be due to inefficient management, bad equipment, or uneconomically small units, but they may also be inevitable owing to the nature of the raw material available. From some pits, for instance, the clay can be delivered to the plant for as little as 2s 4d per 1,000 bricks, whilst in others, equally well-managed and equipped, the corresponding cost may be as high as 9s 6d. Some "clays" again can be dried and burned by the use of only 4 cwt of coal per 1,000 bricks, while others require 4-5 cwt for drying alone and an equal quantity for burning.

It is impossible to give any indication of average selling prices because, apart from "Flettons," variations between corresponding bricks in different districts may be as much as 20s per 1,000 or even more, heavy transport charges preventing the importation of bricks into a district where a high price is ruling.

In certain colliery districts common bricks are made at the pithead as a by-product. The average cost of production of this type of brick may be said to be about 80s per 1,000, although this cannot be compared, of course, with other production costs, as the raw material and, in some cases, the fuel is obtained at a nominal cost. The quality is usually poor, but in certain districts colliery bricks are sufficiently good for ordinary carcassing work. In some instances they are the only bricks available.

¹ For bricks made by the semi-dry process used at Fletton and elsewhere, only £3,000 per million bricks capacity is needed.

The production cost of London Stocks is about 55s to 65s per 1,000, and the price, corresponding to the King's Cross price of "Flettons," in the neighbourhood of 85s per 1,000, although certain inferior qualities are usually sold at cheaper prices. Facing bricks of other types are made throughout the South and East of England, the price ex-works for the best quality varying from 80s to 100s per 1,000 for 2½ in bricks.

While it cannot be held that over a long period profits in the brick industry have been excessive, there seems little doubt that, given a constant demand over a period of years, reduced transport charges and such amalgamations or other arrangements as would provide better equipment in some works, together with more efficient technical control, selling prices in many districts could be greatly reduced.

One of the chief reasons for the present high prices in many localities is that purchasing is almost invariably based on single contracts rather than on prospective demands for a number of years. This irregularity in purchasing so disorganises the brick industry that manufacturers have in many cases felt compelled to form associations for the maintenance of prices at levels that will enable them to balance periods of depression and loss by boom periods.

Associations in the Brick Industry.

The Interdepartmental Committee appointed to survey the price of building materials reported in 1920 that many associations were in existence—in fact, that every district had its own whose boundaries were determined by the similarity of clay and the method of manufacture. Since that date the position has not appreciably altered except in so far as there are more amalgamations or groups owning several works, and these larger firms have a correspondingly greater influence on any association of which they are members.

In most localities brick manufacturers meet and agree on price, although adherence to this price, for large orders at any rate, as in most Trade Associations, is not very rigid, and in many cases no formal association is formed.

The most important association in the brick industry is the National Federation of Clay Industries—a federation of manufacturers to which twenty-three District Associations are affiliated.

The main object of this association is to protect its members' interests in so far as they are affected by legislation. A minor object is the conduct of research, but the fixing of prices is precluded from its constitution.

Among others, the following Associations are affiliated to the Federation: Northern District Federation of the Building and Engineering Brick Trade of England and Wales and Affiliated Associations, South-Eastern Federation of the Building and Engineering Brick Trade of England and Wales and Affiliated Associations, Birmingham Brick Masters' Association; Leicestershire Brick Manufacturers' Association; Midland Brick Association, North Warwickshire Brick Association Ltd., Nottingham and District Brick Manufacturers' Association Ltd., Silica Brick Makers' Association, Stock Brick Manufacturers' Association; Stourbridge Firebrick Trade, Tyneside Firebrick Manufacturers' Association; Walsall and District Brick Makers' Association.

The existence of a high price in any particular district is sometimes overcome by the "importation" of bricks from other areas provided a sufficiently low transport rate can be obtained. For instance, the high price at present ruling in London has made it profitable to "import" bricks from South Wales, although an extreme instance such as this is not of frequent occurrence. It does not follow, however, that bricks "imported" from outside any particular district are as good in quality as those manufactured by local firms, but many builders disregard quality, especially in boom periods, when buying common bricks. Legally, they are entitled to do so, as outside the London area there is rarely any legal requirement except a rather vague statement that bricks should be "hard and well burnt." Since 1980 bricks used for certain purposes in London must have a certain crushing strength, but there is no other regulation in force.

Facing bricks, the price of which is considerably higher, will stand a correspondingly greater transport charge and are hence sometimes "imported" from considerable distances e.g. from Lancashire or Lincolnshire to London. Such bricks, because of some special property, are, however, more comparable economically to Portland stone, granite, and other facing materials which are used primarily because of their aesthetic properties, price being a secondary consideration.

Variation in the Size of Bricks

In England two standard sizes for common bricks have been laid down by the Royal Institute of British Architects. The first is for the South where the dimensions are maximum 2½ ins. by 4¾ ins. by 9 ins.; minimum 2½ ins. by 4¼ ins. by 8¾ ins. The second is for the counties of Northumberland,

Cumberland, Durham, Westmorland, Yorkshire, and Lancashire, where the dimensions are maximum $2\frac{1}{2}$ ins by $4\frac{1}{2}$ ins by 9 ins, minimum $2\frac{1}{8}$ ins by $4\frac{1}{8}$ ins by $8\frac{1}{2}$ ins. It will be noticed that there is only a variation in height between the two standards, the latitude allowed in the other dimensions being purely for the manufacturers' convenience.

The Joint Housing and Finance Committee of the London County Council, in an investigation of the costs of building the Council's estates compared with those erected by other municipalities, reported that lower-cost building was favoured in the North of England by the larger size of the bricks used. There is probably some truth in this contention, although it must be remembered that the larger brick should be more expensive on account of the increased amount of clay required and the greater kiln space occupied. On account of the variation in prices between different districts it is difficult to state whether this is in fact the case, but on the whole it may be said that bricks are cheaper in the North where the larger size is used than in the South, the reason being that in the North, operating conditions such as fuel costs, etc., are usually more favourable.

If it is assumed that 20,000 bricks measuring $2\frac{1}{2}$ ins by $4\frac{1}{2}$ ins by $8\frac{1}{2}$ ins are required to erect an A3 type house, then the superficial area of brickwork is 466,000 sq ins. If, however, the size of each brick is $2\frac{1}{8}$ ins by $4\frac{1}{8}$ ins by $8\frac{1}{2}$ ins, then the number required for the same area of brickwork is only 17,900, a saving of approximately 10.5 per cent. By using the larger brick there would be an equal saving, of course, on bricklayers' wages, provided no extra time was taken in laying, and the total saving, therefore, on each A3 type house would be about £11. It should be noted that the saving shown above is largely theoretical, and as far as can be ascertained has never been proved in practice. It is highly improbable, moreover, that the rate of laying would be the same with the larger brick, especially by bricklayers normally employed in the South and therefore accustomed to the smaller brick.

Competing Materials

So far, this report has only dealt with clay bricks. There is reason to believe, however, that sand-lime bricks can be produced at a lower cost than any other type, with the possible exception of the "Fletton." Official tests have been carried out both in this country and on the Continent, showing that the brick when well made is entirely satisfactory for external use, having practically an unlimited life. In this country, unfortunately, sand-lime bricks have suffered from an unfavourable reputation, mainly due to the fact that their manufacture has sometimes been undertaken without a full appreciation of the technical factors involved, but it should be noted that there is now a British Standard Specification for sand-limes though none for clay bricks. It is commonly held that a works of capacity, say 12 million per annum, manufacturing sand-lime bricks can, with a steady load, produce at costs as low as 18s to 22s per 1,000 with a reasonable expectation, if the size of the works were increased, of reducing costs even below this figure. The usual selling price at present is about 45s per 1,000 ex-works, or from 68s to 80s delivered London area.

Other competitive materials include concrete, timber, breeze blocks, hollow clay blocks, terra cotta and stone. Ignoring the possibility of the all-metal or all-timber house, the only substitutes for clay bricks, apart from sand-lime bricks, which are likely to be of any importance in the construction of working-class houses, are the hollow clay block and the concrete block.

In the United States and on the Continent hollow blocks are frequently used for walling and flooring purposes. They have the advantage of their larger size, the usual standard being a 9 ins width, and therefore the total time taken in erecting a house should be appreciably less. This advantage is lost to a certain extent by the fact that both hands have to be used to place them in position, a difficulty which has, however, been overcome in Germany, where the use of a fork has been developed for putting the block in position. This, however, is rather a clumsy method and the latest development has been the Ludovici one-hand block, which is made with a rectangular cross-section but having a tongue on the top surface and a groove on the lower. By means of this the bricklayer can obtain a quick and easy grip.

The main disadvantage of hollow blocks is that they tend to allow water to leak through the vertical joints owing to the difficulty of making these sound without wasting mortar. This can be overcome by using a $4\frac{1}{2}$ in instead of a 9 in block, and placing the back tier so that the vertical joints in front are staggered. It is, however, so far an unsatisfactory method as it involves the use of metal ties and several shapes of blocks as "closers," and until this difficulty can be overcome the main use of the hollow block for external walls is likely to be for the backing of panels in steel-framed buildings.

On the whole it may be stated that no material is likely to displace bricks, at any rate in the near future, as the main building material for working-class houses, and any economies that are to be gained, therefore, must come from the brick industry itself.

The question of wages has not so far been considered, but it may be observed that a reversion by bricklayers to the old-time practice of laying 100 bricks per hour as against 350-380 bricks per day at present would give an estimated saving of about £12 per house. While, however, employment in the building industry continues to be spasmodic a greater output per man cannot be expected, and once again the main difficulty becomes the provision of a constant load. It is also probable that estimates of the pre-war output per man are often considerably exaggerated (see page 74).

A saving of £20 per house, by no means an impossible goal, in the cost of bricks and bricklayers' wages (by more efficient utilisation of labour, and not by reduction of wages) would reduce the rent by 6d a week. This would be a considerable saving from one material but it should be emphasised that only by tackling each constituent material in turn can it be hoped to make a really substantial saving in the total.

Appendix

The following is a list of brick companies whose shares are quoted on the London Stock Exchange, with their capital and dividends over the last three years.

Company	Year Formed	Issued Capital	Dividends		
			1931-32,	1932-33,	1933-34
Allied Brick & Tile Works Ltd	1934	175,000 6% pref of £1, 800,000 ord of 5s. Total £375,000			
Associated Brick & Tile Works Ltd	1927	729,000 participating 8% pref shares of 2s, 864,950 ord shares of 1s. Total £91,147 ¹			
Berry Hill Brickworks Ltd.	1938	100,000 6½% pref of £1, 400,000 ord. of 4s. Total £180,000	4½	2	
British Cavity Brick & Tile Works Ltd	1928	251,888 pref of 3s, 251,888 ord of 8s; 288,762 def ord of 2s 6d Total £111,510. ²	Arrears of pref dividend cancelled in 1932		
Brick Investments Ltd.		219,095 pref. of 15s; 1,027,825 ord of 1s Total £215,712 ³	No dividend on def		
Bursledon Brick Co., Ltd	1925	22,194 5% pref. of £1; 100,000 ord of 10s Total £72,194.	Arrears of pref. dividend cancelled in 1933		
Coronet Brick Co., Ltd.	1927	1,000,000 ord of 2s Total £100,000	No dividend on ord.		
Eastwood Flettons Ltd	1927	190,000 participating pref of £1, 200,000 def of 1s Total £200,000			
Flettons Ltd ⁴		600,000 ord of 5s Total £150,000 ⁵	11½	11½	
London Brick Co & Forders, Ltd.	1928	400,000 8% pref of £1, 1,400,000 ord. of £1 Total £1,800,000.	4½	2	4½
Marston Valley Brick Co., Ltd.	1938	317,400 ord of £1. Total £317,400	9½	10	12½
Maidenhead Brick Co., Ltd.	1919	1,150,000 participating 10% pref of 2s, 265,000 ord of 1s Total £128,250.	7	50	183
Sussex Brick Co., Ltd.	1927	150,000 8% pref. of £1; 4,000,000 def. of 1s Total £350,000.	50	50	26
Yorkshire Brick Co., Ltd	1938	300,000 6% pref. of £1; 914,000 ord of 5s Total £547,500	20	15	20

¹ Capital reduced from £125,000 in 1930

² Capital reduced from £374,000 in 1932

³ Capital reduced from £542,000 in 1933

⁴ Now controlled jointly by Yorkshire Brick Co. and Brick Investments Ltd

⁵ Capital increased from £60,000 in 1932 by issue of bonus shares.

NOTE — These companies were selected solely because the figures given were obtainable. They are not necessarily a full or accurate sample of the financial organisation of the brick trade and do not include any of the smaller or older brickworks which are mostly privately held.

TIMBER

Timber, including joinery, constitutes from 15 to 25 per cent of the total all-in building cost of an A3 type house

Practically the entire British consumption of softwoods, namely about 98 per cent, is imported, and the following tables give imports by countries over the period 1929-88

UNITED KINGDOM IMPORTS OF TIMBER
(Soft, other than planed or dressed)
(^{'000} standards)

	1929	1980	1981	1982	1988
Russia	508	535	515	455	356
Finland	426	332	310	331	505
Latvia	104	10	81	78	110
Sweden	261	204	155	197	234
Norway	36	27	10	18	8
Poland	38	53	74	59	152
U S A	89	110	67	45	42
Canada	67	70	44	65	122
Other Countries	52	35	32	33	60
Total	1,581	1,092	1,288	1,186	1,609

(Soft, planed or dressed)
(^{'000} standards)

Finland	19	23	32	24	35
Sweden	108	107	96	104	140
Norway	51	45	31	26	22
U S A	8	6	7	6	15
Other Countries	6	6	11	13	37
Total	187	187	177	173	240

Timber-exporting countries may be classified by three groups Northern Europe, Russia and North America, and as the method of purchase adopted by importers in the United Kingdom varies with the source from which the timber originates, it is proposed to treat these three sources of supply separately, neglecting for the moment the correlation between all three and the ruling price for timber in the United Kingdom market

Northern Europe

Finland and Sweden are the two most important timber-exporting countries in Northern Europe, supplying in 1988 29 and 18 per cent respectively of the total United Kingdom imports, although exports from Poland have latterly become of increasing importance

In both Finland and Sweden, shippers are grouped into Associations, the Finnish Sawmill Owners' Association and the Swedish Timber Export Association. The Finnish Association fixes minimum prices from time to time and also requires all members to report details as to prices and specifications of any sales completed. These details are circulated to other members without disclosing the name of either the shipper or his customer. Both Associations act, however, in a supervisory capacity, and price-fixing is not the prime motive for their existence.

Shippers do not deal direct with importers in the United Kingdom but act only through agents working on a commission basis. The function of these agents extends somewhat beyond the mere collection of orders, and in some cases goes as far as the actual financing of the shipper. The agent, for instance, may pay for the timber against documents, at the same time granting his customer credit, or may guarantee the financial status of the importer. Agents may only deal with importers recognised as such by the Timber Trades Federation, the ruling body in the United Kingdom, although this regulation is not always strictly adhered to. The Timber Trades Federation acts in conjunction with the shippers' associations in Finland and Sweden in this instance, in order to prevent, as far as possible, the encroachment of merchants in the importers' sphere.

Shipments are limited to the spring and summer months owing to the Baltic ports being ice-bound in other seasons, although the actual selling season opens in September and October when shippers forward stock specifications and prices to their agents for the first open-water delivery in the following year

The following table gives the total timber exports from Finland and Sweden during 1980-88 and the percentage taken by the United Kingdom

FINLAND AND SWEDEN—TOTAL TIMBER EXPORTS AND PERCENTAGE GOING TO UNITED KINGDOM
(’000 standards)

	SWEDEN		FINLAND	
	Total	Per Cent to the U K	Total	Per Cent to the U K
1980	1,018	21	900	37
1981	761	21	779	40
1982	768	26	782	45
1983	902	31	961	53

The extent to which the Finnish and Swedish industry is dependent on exports to the United Kingdom results in the f o b price being largely governed by the United Kingdom demand. A review of the industry over the last few years is, therefore, of interest as demonstrating the effect of Russian timber exports on the United Kingdom demand for Swedish and Finnish timber and therefore on the ruling price

Timber prices started to fall in 1928, due to offers of Swedish and Finnish timber which the market could not absorb owing to the reappearance once more of Russia as an important timber-exporting country. Finnish and Swedish shippers, however, continued to press sales, and it was not until 1930 that there was a marked falling off in total exports. The trade depression had by then spread to the timber-consuming industries, and in spite of the smaller offers prices continued to fall during 1930-32. Shippers and sawmills, in consequence, suffered heavy losses and many were forced to close down, the banks also taking control of a large number of concerns which became insolvent. Following on the control of the industry passing into the hands of the banks, a certain amount of reconstruction took place, and at the end of 1933 the situation both in Sweden and Finland was far more stable.

The importers and merchants in the United Kingdom, at the same time, had not escaped the full effects of the depression, and heavy losses were made. Stocks were reduced to a minimum so that the first signs of revival at the end of 1932 saw importers more willing to purchase than at any time since 1930.

The situation both in the United Kingdom and the supplying countries was, therefore, much better at the beginning of 1933, and the embargo placed on Russian goods by the British Government in April caused large purchases of Swedish and Finnish timber to be made by United Kingdom importers. Prices were rapidly advanced by as much as 20 per cent, and even the Russian exporters obtained an increase in price for the remainder of their deliveries when the embargo was lifted in July. The British embargo on Russian timber was, therefore, the turning point in timber prices, and the increased demand resulting from the renewed building activity in the United Kingdom, enabled prices to be maintained at the beginning of the 1934 season.

Actually in 1933 the increased exports from Sweden and Finland were almost entirely due to the United Kingdom, only three other countries increasing their imports, namely, Holland, Denmark, and South Africa, and there was therefore little justification for the rapid increase in price that occurred.

The following table gives the Swedish and Finnish prices in 1918 and post-war years

SWEDEN AND FINLAND—f o b PRICES, 1918 AND 1921-34
(Per standard 7 m basis unsorted)

	£ s d		£ s d
1918 ¹	8 10 0	1928 ²	14 0 0
1921 ²	29 5 0	1929	18 10 0
1922	17 0 0	1930	18 0 0
1923	18 10 0	1931	11 15 0
1924	17 0 0	1932	10 0 0
1925	18 10 0	Jan 1st 1933	10 0 0
1926	18 0 0	Oct 1st 1933 ⁴	12 0 0
1927	18 5 0	Jan 1st 1934	12 0 0

¹ United Kingdom imports from Russia 35 per cent of total

² United Kingdom imports from Russia 4 per cent of total

³ United Kingdom imports from Russia increased to 20 per cent

⁴ End of United Kingdom embargo on Russian goods

From the above table it can be seen that an increase in Russian exports does have a depressing influence on Swedish and Finnish prices, although this factor must be of diminished importance now that Russian imports into the United Kingdom are strictly curtailed

Russia

In pre-war years the Russian Empire, excluding Finland, was the main source of timber supply for the United Kingdom, but with the outbreak of war the position was entirely changed, and it was not until 1928 that Russian exports once again began seriously to affect the timber market. Since 1928 imports of Russian timber have been as follows

UNITED KINGDOM IMPORTS OF RUSSIAN TIMBER
(000' standards)

1929	508
1930	535
1931	515
1932	455
1933	356
1934 (quota)	350

The original contract in 1933 was for 415,000 standards, but owing to the embargo this was curtailed to the figure shown above

For the purchase and distribution of Russian timber British importers are formed into a single company known as the Timber Distributors Ltd, which has the sole right to negotiate with the White Sea Timber Trust, the sales organisation of the Russian timber industry. The reasons for the formation of a single buying organisation were two: first to prevent any undue dumping of Russian timber on the market, and secondly to equalise the bargaining power between importers and the White Sea Timber Trust. The shares of Timber Distributors Ltd are entirely held by importers who have been accustomed to import Russian sawn timber. Distribution is effected through the regular trade channels at published prices. The company's profits are distributed to the importers who have bought the production, who are, at the same time, the shareholders.

Since 1931, following the Ottawa agreements, the quantity of Russian timber entering the United Kingdom market has been restricted by the Board of Trade. The method adopted is for the latter to stipulate the maximum import permitted for each year which, in practice, becomes the actual import, Timber Distributors Ltd always purchasing as much as they are allowed.

The 1934 agreement between Timber Distributors Ltd and the White Sea Timber Trust was noteworthy for three reasons: the first was the further reduction in allowed imports imposed by the Board of Trade, the second, the abolition of the "fall" clause, and the third, the increase in the contract prices to such a level as to give Russian timber no advantage over Finnish and Swedish. The abolition of the "fall" clause and the further reduction to 350,000 standards in the allowed imports of

Russian timber were caused by representations made by Canadian timber interests. The "fall" clause, which had always been embodied in the former agreements, stipulated that when the price of other timber fell, the price of Russian timber could be reduced by an equal proportion, so that in effect it was always below the ruling price for other timber, the question of quality, of course, being taken into consideration. Other exporting countries had always taken great exception to the existence of this clause, the main argument being that it had a generally depressing influence on timber prices. It is difficult to see, however, from the point of view of Canadian timber how this argument is valid. Canadian and Russian timber do not enter into direct competition as Russian timber is very much superior in quality, and in consequence is not used for the same purpose as Canadian, so that for all practical purposes Russian and Canadian timber are two different commodities.

Furthermore, the price of Canadian timber is very low and, at the same time, so erratic as to make the conception of a ruling price impracticable.

It is very doubtful, therefore, if Canadian interests will benefit to any extent from the abolition of the "fall" clause, and at the same time, of course, a reduction in imports from Russia does not necessarily bring an increase in imports from Canada. It will be noted that imports from Canada increased considerably during 1983 and January-April 1984, but this was undoubtedly due to reasons which had no connection with the decrease in imports from Russia such as the low Canadian prices and the realisation by the trade that the quality was sufficiently improved to enable the timber to be used for ordinary carcassing purposes.

Any advantage that may accrue, therefore, by the abolition of the "fall" clause and the restriction on Russian imports to 850,000 standards is likely to be obtained by Finland and Sweden.

The price of Russian timber in the 1984 agreement was increased by approximately 17 per cent, and it can be seen from the following table that the present price is considerably in excess of that ruling in the immediate pre-war years.

PRICE OF RUSSIAN TIMBER, 8RD QUALITY RED ARCHANGEL, 7 IN BASIS
(per standard)

	£	s	d.
1914	8	10	0
1928	16	15	0
1980	14	10	0
1988	11	7	6
1984	18	5	0

A comparison of the prices shown above with Finnish and Swedish prices given on page 98 demonstrates the fact that after making due allowance for the superior quality, there is little price advantage in Russian timber. Despite this, however, at the end of May 1984, Timber Distributors Ltd had specifications of only 20,000 standards left unsold, which serves to show the preference accorded to Russian timber by the United Kingdom trade and the readiness with which it is absorbed.

North America

Prior to 1981, imports of timber from the U.S. were of greater importance than those from Canada, but since that date the growth in Canadian imports has been very rapid, as the following table shows.

UNITED KINGDOM IMPORTS OF CANADIAN TIMBER

	Quantity ('000 standards)	Percentage Increase over 1981
1981	44	—
1982	65	48
1983	182	310

The tendency for increasing Canadian imports has been continued during January-June 1984, in an even more remarkable manner.

UNITED KINGDOM IMPORTS OF CANADIAN TIMBER
 JANUARY-JUNE 1932-34
 ('000 standards)

January-June	1932	25
"	1933	44
"	1934	145

Canadian forests represent the only extensive softwood stand in the British Empire, and Canada has been the only country exporting softwood to benefit from the 10 per cent Empire preferential duty granted by the United Kingdom in 1931. This preferential duty was not by itself a sufficient inducement for a large increase in Canadian imports in 1932, partly owing to the great distance (through the Panama Canal) which timber destined for the United Kingdom has to be transported. It was not until the United States, which for ten years had taken 70 per cent of Canada's exports and 85 per cent of her total production, placed an almost prohibitive tariff against imports of timber in 1932 that serious attention was paid by Canadian exporters to the United Kingdom market.

There were several reasons which accounted for the comparative failure of Canadian timber in the United Kingdom market prior to 1933. Besides the inferior quality it was usually badly sawn to size and, at the same time, contained a large number of splinters sometimes 2 ins to 8 ins long. There was, therefore, a certain amount of prejudice to be surmounted, especially among importers, and it was not until some of those defects were overcome and it was realised by the trade that the quality was sufficiently good for the smaller type of house, that any increased demand for Canadian timber in the United Kingdom was felt. To a large extent the rapid increase in timber prices from other countries during 1933 enabled Canadian timber to force itself on to the market, and as long as the price is maintained at a sufficiently low level it is not likely to be displaced, the only timber which is at all comparable in price being Danzig redwood.

It is impossible to give any exact figures for Canadian prices, but probably £8 per standard c i f London is about the mean, although a price of £5 15s 0d per standard was quoted at one time during 1933. When it is realised that freight charges from the west coast of Canada are approximately £4 5s 0d per standard, it can be seen that the f o b price is extraordinarily low.

Apart from the low price, Canadian timber has certain other advantages. Shipments can be made all the year round, although delivery can only be obtained by the importer four to six months after the placing of the order. With a constant load, however, time taken for delivery is not a vital factor, and the winter shipments obviate the necessity for maintaining large stocks. Another advantage is that shipments can be obtained of any lengths required, a policy which Finnish and Swedish shippers cannot undertake without special prices on account of their smaller timber. This, of course, is a very strong factor when a constant load of any size is required.

Exports from Canada largely consist of deals, battens and scandings, board dimensions not figuring largely on the shipper's lists. When importers, therefore, want well-cut boards for joinery or planing, Scandinavian or Russian timber is used, but when carcassing timber is required, then Canadian timber is considered good enough.

Canadian timber has therefore served a very useful purpose in counteracting the effect of the rise in timber prices from other exporting countries on building costs, although this rise could probably have been prevented if unlimited quantities of Russian timber had been admitted.

Method of Distribution in the United Kingdom

The timber-distributing trade in the United Kingdom is controlled by importers and merchants, the ruling body being the Timber Trades Federation. This Federation is not a price-fixing association, although attempts have been made from time to time to stabilise minimum prices, generally, however, with little success. The constitution and nature of the trade, moreover, does not lend itself readily to any form of price ring, although importers who have of necessity to carry large stocks suffer heavy losses on a rapid fall in price.

Normally, importers sell to the merchants, although a large contractor placing an order of, say, 50 standards, will usually deal direct with the importer. Delivery is, in most cases, made by lorry, except for long distances when canals are utilised as far as possible—e.g. for Midland towns—transport costs being about 6d per standard per mile, excluding loading and unloading. The price of Canadian timber, for instance, for a large contract delivered on site within a radius of 50 miles of the port of entry would be in the neighbourhood of £12 per standard. If the c i f price is taken as £8 per standard,

this gives a margin of 50 per cent for the importers' profit, handling and transport, which cannot be considered excessive. There are, however, certain indications that rather substantial profits are made by the brokers, and that certain channels exist by means of which purchases can be made considerably below the published prices. The position in this respect appears to require further investigation.

It can be said, therefore, that the distributing trade in the United Kingdom is, on the whole, efficiently run from the point of view of the consumer, and no substantial price reduction could be obtained by any reorganisation. If the cost of timber to the consumer is to be reduced, therefore, other methods must be considered, and one to which some attention has been paid is the use of inferior qualities. Timber, to find a market in the United Kingdom, must be of a higher quality than that normally used on the Continent, where a timber which is full of sap and also waxy is readily consumed. Waxy timber is about £2 a standard cheaper and this is, of course, a substantial saving, but it should be noted that the Standards Institution has carefully considered the question and issued a warning against any substitution of inferior qualities. There is no doubt, however, that in some parts of the country the quality of timber used has been needlessly high, especially in the case of carcassing timber, and that some cost reduction could be obtained by the substitution of a quality which, although inferior, would be quite suitable for the purpose required.

It can be said, however, that timber prices are, on the whole, controlled by forces acting outside the United Kingdom, although the tariff and quota policy of the British Government has a very important effect on them. No international agreement among timber-exporting countries is at all likely, and the enormous expansion in Canadian imports must have some influence on Swedish and Finnish prices. Many importers are expecting a reduction in prices on account of this at the end of the 1984 season, a contributory cause being the large increase in production that has occurred in Finland, although Finnish and Swedish shippers have disposed of such large quantities at the beginning of 1984 that they are in a strong position to resist any fall in prices for some time. But there is no doubt that an increase in the allowed imports of Russian timber would have a greater effect on Finnish and Swedish prices than the increase in Canadian imports, the timber being more directly competitive, and no great injury would occur to Canadian timber interests if this were done.

Appendix

EXPORTS OF PRINCIPAL COUNTRIES ('000 standards)

	1928		1929		1980		1981		1982		1983	
	% of	% of	% of	% of	% of	% of	% of	% of	% of	% of	% of	
Sweden ¹	1,078	17	1,221	18	1,026	18	750	11	768	20	909	19
Norway	112	2	122	2	104	2	57	1	59	2	45	1
Finland ¹	1,141	18	1,200	18	900	16	780	17	782	19	978	21
U S S R ²	569	9	829	12	964	17	1,050	28	918	24	1,000	21
Estonia	79	1	61	1	45	1	29	1	16	—	45	1
Latvia ²	198	3	193	3	196	3	124	3	94	2	156	3
Poland	466	7	296	4	811	5	252	5	148	4	281	6
Czechoslovakia	162	2	102	2	101	2	18	1	42	1	40	1
Austria	432	7	878	6	818	5	254	6	197	5	206	4
Yugoslavia ²	811	5	809	5	252	4	141	3	109	3	180	4
Rumania ²	464	7	435	6	321	6	295	6	209	6	200	4
U S A ²	743	11	802	11	575	10	397	9	271	7	300	6
Canada	729	11	738	11	629	11	404	9	271	7	430	9

¹Inclusive of Pitwood

²Approximate

CEMENT

Producers' Combines and Price Stabilisation

Cement is one of the most important materials used in the building industry in general, and its use for large buildings and for public works in particular has greatly increased during the last 20 years, and is likely to continue to do so. It is not, however, very largely used in connection with working-class housing except in the case of flats. The cement industry is unique among those concerned with building materials in that about two-thirds of the total output is controlled by one firm (Associated Portland Cement Manufacturers Ltd) which was originally formed in 1900 as an amalgamation of thirty concerns manufacturing cement in the valleys of the Thames and Medway.

The main object of the formation of this combine was the prevention of price-cutting, and, in fact, the whole history of the industry up to the present day shows a long series of attempts to obtain price-stabilisation

The initial years of Associated Portland Cement Manufacturers Ltd were not very successful financially, and it was not until 1913 that any dividend was paid on the ordinary shares. The main reasons for this were (a) the high level at which the combine was capitalised, (b) severe competition both in the home and export markets from the Continent, especially from Belgium, which provided cement of inferior quality at a low price, and (c) the reluctance of purchasers to insist upon cement conforming to the Standard Specification. Since insistence on conformity to the Standard Specification has become more general, foreign competition has greatly diminished.

In 1911, the Associated Company fostered a further amalgamation of thirty-three firms under the title of British Portland Cement Manufacturers Ltd, which is controlled by the Associated Company and united with them in the Cement Marketing Co., Ltd. The A.P.C.M. thus obtained a powerful influence over about 85 per cent of the total British production. During 1914-1918 productive capacity was greatly increased, and on the conclusion of the War further plants were erected on account of the large profits then being made in the industry. The most important of these new concerns was that known as the Horne or "Red Triangle" group. The British Cement Products and Finance Co., Ltd., and the Associated Anglo-Atlantic Corporation Ltd. were the financial houses associated with this group, which then controlled about one-sixth of the total capacity. The actual producers in the group were the Ship Canal Portland Cement Manufacturers Ltd, the Holborough Cement Co., Ltd., Greaves, Bull & Lakin (Harbury Works) Ltd, the Dunstable Portland Cement Co., Ltd., Smeed, Dean & Co., Ltd., and Wiggins & Co. (Hammersmith), Ltd, and the selling organisation was the Portland Cement Selling and Distributing Co., Ltd.

Between 1918 and 1928 production capacity rapidly increased, and soon exceeded the normal demand. A period of severe price-cutting which followed, which was only brought to an end in 1928 by the "Red Triangle" group and certain other independent producers joining the Cement Makers' Federation.

The cement industry began to feel the full effects of the depression at a somewhat earlier date than most other industries, owing to the practical cessation of public works expenditure, with the result that the "Red Triangle" group became financially involved and went out of business in 1931, most of the constituent producers being taken over by the Associated Combine ("Blue Circle" group) in October 1931.

Although the quoted price of cement in paper bags (20 to the ton) has remained fixed since 1928 at 46s per ton, it has never commanded rigid adherence, especially during 1932 and 1933, when the average realisation on account of special discounts and allowances was probably not much above 30s to 35s per ton. A certain amount is sold in small quantities at a time, and on this a higher realisation is obtained, but it is probably a relatively small proportion of the total.

It is thus impossible to give any exact figures for the price of cement since 1929, and the only guide is the value per ton of imports and exports, which has declined steadily since then.

	EXPORTS Value per ton	IMPORTS Value per ton
	s. d.	s. d.
1929	46 5	36 5
1930	44 0	35 5
1931	42 0	35 5
1932	37 0	29 0
1933	32 10	26 0

It should be noted that, as indicated above, much of the cement imported has been of a lower quality than the British product, and the imported material has generally had a poor reputation. Much of it is not suitable for, and would not be accepted on, public works contracts, apart from the question of Empire preference. As the greater part of the consumption of cement is in this section of the trade, it is reasonable to suppose that foreign competition is not as great as would appear from the import figures given on page 116. A small proportion of standard quality is, however, imported by firms (chiefly of foreign origin or controlled by foreign engineers) who prefer to use a familiar material.

The fall in the volume of exports, which has been another factor encouraging severe competition on the home market, has been due not so much to increased international competition, or to the general economic and financial depression (in which case there should have been a rise at the time of the departure from the gold standard), as to the fact that former buyers now manufacture locally. To a large extent the loss is, therefore, probably permanent.

Throughout the period of depression, Associated Portland Cement Manufacturers made repeated efforts to arrive at some form of agreement with the independent producers, and at the beginning of 1934, when demand showed some signs of improving and the unsettling influence of imports had been reduced to a minimum by the imposition of a duty of 10 per cent ad valorem, conditions were found to be more favourable, and an agreement among all producers in the industry was concluded in June 1934.

Under this new agreement each producer has been allotted a quota based on his average production over a period of years. Quotas are to be elastic and are under the control of a Central Committee elected by the whole industry. This committee is quite distinct from other Associations.

Apart from control over production, the Central Committee is undertaking a general publicity campaign, particular attention being paid at the moment to the use of cement for road construction. The expenses incurred are to be met by a levy on all producers in accordance with the percentage of total output for which each is responsible.

The first effect of the new agreement has been the raising of prices in all districts, in certain instances by as much as 20 per cent, and in view of this somewhat large increase it is of interest to examine the financial results of the leading producers, particularly over the last two years during which price-cutting has been most severe.

DIVIDENDS ON ORDINARY SHARES OF PRINCIPAL PRODUCERS, 1930-33

Company	1930-33			
	1930	1931	1932	1933
Aberthaw & Bristol Channel Portland Cement Co., Ltd	8½	6	6	5
Associated Portland Cement Manufacturers Ltd	8	8	8	7
British Portland Cement Manufacturers Ltd.	15	15	15	15
Central Portland Cement Co., Ltd	7½	7½	10	10
Eastwoods Portland Cement Co., Ltd	7½	6	6	3
Ketton Portland Cement Co., Ltd ¹	—	2½	5	5
Oxford & Shipton Portland Cement Co., Ltd ²	Nil	Nil	1½	4
Tunnel Portland Cement Co., Ltd	20	20	20	20

¹ Started in 1930

² Since renamed the Alpha Cement Co

Compared with industrial companies in general, and even with other building materials industries, it cannot be said that the cement industry has been unremunerative throughout the depression. This seems to show that during the same period a reduction in manufacturing costs was achieved, which was large enough to counteract the fall in the price of cement, and the loss of export trade.

Production Costs

It is very difficult to give any indication of such reduction statistically, but the modernisation of many plants, the erection of very large and economical plants, and the closing of most of the older and smaller ones—some of which were very inefficient—have made rapid progress in the cement industry during recent years. This is shown by the Census of Production returns of power used—between 1924 and 1930 the installed electrical capacity rose from 21,691 h p to 105,309 h p—and by the fact that the number of employees fell during the same period from 13,590 to 11,112, while the net output per employee rose from £361 to £417. These figures relate only to firms employing more than ten persons (smaller firms are of little importance in the cement industry). Owing to the separation of works from quarries in the 1930 Census, moreover, net output for that year has been calculated after allowing for full cost of production at quarries instead of the cost of materials alone, as in 1924. On the basis adopted for 1924, therefore, the net output in 1930 would be larger than that given, which would make the increase in net output even greater. It may, therefore, be assumed that a substantial reduction in costs has been achieved both by the large combines and also by the independent producers, and this has allowed the latter concerns to improve their turnover by cutting prices.

It is probable that a fairly considerable period of time will elapse before the full effects of the price agreement on market prices and manufacturers' profits will materialise. It was not until the opening months of 1934, just before the agreement was signed, that the price-cutting war reached its most intense stage, and large consumers were able to cover their requirements for as many as twelve months ahead on very favourable terms. The cement companies were consequently left with a legacy of low-priced contracts which will dilute the increased profits on new contracts for some time to come. On this score, the impact of the sudden increase in prices may have been softened somewhat for the consumer, and the full and final implications of the agreement disguised. On the other hand, there is the possibility that the agreement may at any moment be consolidated and tightened by the formation of a central controlling body for the industry, with definite and permanent powers.

The main defect of the new agreement is that no arrangements have been made for the elimination of the less efficient plants, indeed, their continuation is guaranteed by the provision of quotas and the raising of minimum prices unless such quotas are purchased by other producers.

Agreements to prevent uneconomic competition are to be encouraged, but it appears in this instance as if the less efficient firms are to be maintained at the expense of the consumer, this is the more unfortunate as prices have been raised at a time when the demand for cement is tending to increase, while unemployment, though tending to decrease, is still excessive.

Possible Economies in Use

Although, as already stated, the amount of cement used in cottage construction is not large, it forms an appreciable item in the cost of construction of flats. Since the main method of reducing construction costs must be by accumulating a number of small savings on each material, any unjustified increase in the price even of a minor component may assume a relatively increased importance. From the point of view of the consumer one of the chief dangers of the cement agreement is that there is no means by which he can prevent the price being raised against him to an unlimited extent.

While it is anticipated that owing to its large buying power, and in the ultimate resort, to the support of public opinion, the E.H.C. should be able to secure its supplies of cement on favourable terms, it cannot be denied that against this powerful organisation of producers it has no weapons stronger than its influence as a consumer and a sentimental appeal. It seems necessary, therefore, to consider alternative safeguards. (1) Diminished use, or complete elimination of cement might be possible in cottage work, but not for flats. (2) Increased imports based on reduction or removal of the tariff would require proof of exploitation by British producers to the Import Duties Advisory Committee, and would scarcely be satisfactory as a permanent solution. (3) The consumer might start manufacturing on his own account. This would also be an unsatisfactory solution not only through leading to a further increase in capacity which is already in excess of requirements, but also because it is undesirable that the E.H.C. should occupy itself other than on the work for which it was planned. Nevertheless, as it would be possible to find suitable sites within economic radius of transport, and to obtain the necessary capital, there is no reason why, in the ultimate resort, this step should not be taken. (4) Finally, there is the safeguard of alternative materials, and this raises certain technical problems which require careful consideration. Blast furnace cement is outside the scope of the cement makers' agreement, and might be used under favourable circumstances in the North of England. It is at least arguable that it would be economically desirable to encourage a product associated with a depressed industry rather than to pay excessive prices to a profitable one should such prices be demanded. Another possibility is that certain companies might be prepared to manufacture special grades of cement for E.H.C.

The advance in the quality of cement during the present century has been brought about solely with a view to its use in structural engineering work. It can be shown that such an improved cement is not so suitable for use in connection with brickwork as the earlier types, and there is an increasing body of evidence which suggests that to build "soft" has considerable advantages over any attempt at hard, rigid building intended to be truly monolithic. Further, the conditions on the site are such that the full value of these improved cements is lost through unsuitable handling, and in so far as mortar for brickwork is concerned, it is impossible to use a weaker gauging than 1 in 4 owing to a lack of fatness or workability of such weaker mixes. Such a mortar is, moreover, far stronger than is needed.

Two alternatives seem to be possible, either (1) to manufacture a less finely-ground cement, or (2) to market a mix of cement and hydrated lime primarily for brickwork. Whilst the cost of such a mix might not be much less per ton than the cement alone, it would be possible for it to carry much more sand, and the cost per yard of mortar would be much less.

The main apparent objection to this idea is that after gradually educating the trade to use a high quality as laid down by the British Standard Specification, it would seem to be a retrograde step to suggest encouraging the use of a lower quality product. The crux of the question is, as shown above, that there is good reason to believe that both quality and price are unnecessarily high for cement for use in cottage building. The difficulty that if a lower grade cement were sold for the purpose, it might be substituted on work where use of a higher grade was desirable, could be got over by use of a special pack, or by integrally colouring the cements, and in this connection it should be pointed out that most firms already make two grades.

Finally, a further alternative would be to utilise mainly pan stuff¹ from a mill centrally positioned on the building site, the product being distributed to actual work centres and there gauged with a minimum quantity of cement of the quality now marketed.

Methods of Sale and Division of Consumption

Cement is mainly sold through the following three channels

- (a) Direct probably 70 per cent is so sold,
- (b) Through local depots and agents of the makers,
- (c) Through builders' merchants

The chief uses are

- (a) For concrete. This is by far the most important use—probably 80 per cent of the total;
- (b) Artificial stone for lintels, steps, paving and general use (7 per cent),
- (c) For improving mortar (5 per cent),
- (d) For stucco and external plaster (8 per cent),
- (e) For making asbestos roofing tiles, gutters, and other articles (8 per cent),
- (f) As a filler—its cementitious value being disregarded—and sundry other uses

Capacity, Production and Trade

The following table gives rough estimates of the capacities of the chief producing companies. As no information on the subject is published, no great reliance should be placed on the estimates given, which, however, probably give some idea of the relative importance of the different concerns.

	Estimated capacity (000,000 tons)	Total capitalisation including debentures (£000,000)
Associated Portland Cement Manufacturers Ltd (including Holborough Cement Co, Dunstable Portland Cement Co, Ltd, Smeed Dean & Co, Ltd, Greaves, Bull & Lakin (Harbury Works) Ltd, and British Standard Cement Co, Ltd)	2 40	10 62
British Portland Cement Manufacturers Ltd	1 50	4 87
Total A P C M. Group	3 90	
Earle, G. & T. (1925), Ltd	0 45	—
Aberthaw & Bristol Channel Portland Cement Co, Ltd.	0 80	0.72
Ship Canal Portland Cement Manufacturers Ltd	0 25	—
Eastwoods Cement Ltd and Eastwoods Lewes Cement Ltd	0 20	0.21
Tunnel Portland Cement Co., Ltd.	0 17	—
Other companies (capacities under 150,000 tons per year)	1.40	—
TOTAL	6.67	

¹ i.e. reground old mortar and soft brick with sufficient added lime.

The estimated production and trade in cement is shown in the following table:

PRODUCTION AND TRADE IN CEMENT

(Tons)

Year	Estimated Production	Imports	Exports	Apparent consumption
1924	8,148,000	160,586	651,220	2,652,000
1925	8,758,000	217,458	695,566	8,275,000
1926	8,780,000	330,584	548,993	8,522,000
1927	4,328,000	417,086	754,053	3,991,000
1928	4,488,000	276,232	910,836	3,849,000
1929	4,690,000	276,920	1,092,819	8,875,000
1930	4,948,000	225,078	1,039,045	4,129,000
1931	4,641,000	140,511	664,233	4,118,000
1932	4,831,000	97,122	616,188	8,812,000
1933	4,020,000	90,967	491,406	3,620,000

VI. MANAGEMENT; UPKEEP AND REPAIR

The problems of management of working-class property are not new, but any attempt to organise the economic production of working-class housing necessitates the examination afresh of the fundamental issues involved

It is unnecessary to dwell at length on the evils caused by the type of agent whose chief concern is the immediate profit of an ignorant or indifferent client. Such ignorance is inevitable when a chain of solicitor, agent, and rent collector separates the owner from his tenant

Octavia Hill saw the root of the evil to be lack of personal contact between landlord and tenant; by raising the status of the agent, she raised the standard of property management. We believe that this principle of housing management is one applicable in the main not only in the case of new and municipal housing estates but to all classes of property

The Objects and Functions of Management

The *Landlord* demands from management a just return in the form of rents on capital invested, and the preservation of this capital by the maintenance of his property

Broadly speaking, these interests are included in the *technical* functions of management

The *Tenant* demands from management a well-maintained dwelling of reasonable size at a rent within his means, surroundings compatible with comfort and confidence that complaints, suggestions, and requests will be rationally received

These interests of the tenant are covered by the *social* functions of management

While there is no doubt that the interest, both of the landlord and his tenants, demands that he shall undertake something much more than mere rent collection, there is a difference of opinion among authorities on management as to how far the technical and social functions referred to above should be combined in one person.

On the one hand it is held, on the basis of experience of management on Octavia Hill lines, that the technical and social functions are so interrelated as to necessitate their being carried out by the same person. The social function requires personal contact, which is best sustained by weekly collection of rents, the technical function involves control of repairs, with its attendant control of finance. While the advantages of this identification of function are most clearly exemplified in the case of an enlightened manager acting as agent for a small private estate or public utility society, it is held that the same principle undoubtedly underlies the management of estates on a larger scale

On the other hand, it is held that the personal qualities of tact and experience required in the person of the housing manager are so exceptional, since the whole success of the scheme depends on obtaining the complete trust and goodwill of the tenants, that the work is made unnecessarily difficult when the technical and social functions are combined. The need for such help is greatest in the case of rehousing and slum clearance schemes, and it is precisely here that difficulties over payment of rent are most likely to arise

In rehousing and slum clearance schemes, continuous personal contact, preferably with rent collection, is regarded by us as essential to success

There are two kinds of clearance schemes

(1) Where the authority is closing all buildings for living purposes with no intention to redevelop,

(2) Where the authority is exercising powers of compulsory purchase in order to redevelop the site for working-class housing

In the latter case, the purchase takes place before demolition, and rent is therefore collected from the sitting tenants, which gives the manager the best opportunity to rehouse them in the light of her acquired knowledge.

A striking example of success is shown in the report of the Woman Property Manager on the Grosvenor Estate (Westminster City Council), where 85 per cent of tenants were rehoused and subsequent arrears of rents in the new property were 05 per cent of the gross rental

One of the chief criticisms of the second system is that although, where a staff of rent-collectors is employed solely to collect the maximum amount of money in the minimum amount of time, great economy can be effected, the method is only successful where the great majority of the tenants are of a superior type needing little individual attention, and, moreover, the fact that such success has been achieved on numerous housing estates since the war is a damaging admission of the general failure to house the poorest classes. It is in fact no more sensible for a doctor to congratulate himself on the well-being of a clientele who are never ill than for managers to congratulate themselves on the smooth working of estates which do not include tenants from among the lowest income groups

While we are convinced that bare rent collection, unaccompanied either by combination of the social and technical functions of management in the person of the manager, or by separate provision for social work, is totally inadequate to the requirements of working-class housing at the present time, we are unable to state that either system is definitely preferable to the other

We are, however, of the opinion that rehousing of the poorer classes can only be successfully achieved by the constant attention of skilled management to many problems hitherto almost untouched on most housing estates. For example, careful allocation of tenancies, by which we mean the placing of a less good tenant between two good ones, control of vermin by modern methods, and the assessment of differential rents, which is a system almost certainly bound to increase. This latter system will undoubtedly tend to reduce the loss of rent arising from unemployment on the part of the tenant. It is to be hoped that these methods will be extended to other than council tenants in due course

We are also satisfied that a rent collector pure and simple cannot be fully informed as to the existence of overcrowding, and that it is a basic function of housing managers to prevent overcrowding, since only on information supplied by them can regulations as to overcrowding be enforced

In connection with the allocation of tenants, we are apprehensive of the effects of town-planning zoning on working-class tenants, as this appears to be having the effect of segregating them from other sections of the population having the advantage of a higher standard of living. The forces involved are very complex: thus in suburban areas a landlord may be willing to accept a low density under town-planning regulations in order to restrict the use of his land to middle-class tenants, and in urban areas the opposition from middle-class tenants to having working-class housing erected in their immediate neighbourhood may be very strong, but although we are unable to offer a solution to this difficulty we do not believe that the present tendency in the direction indicated is one which should be encouraged

It may be observed, in passing, that housing management of the type associated with the name of Octavia Hill is generally done by women. The future alone can prove whether it will remain the prerogative of women. The sex of the manager appears to be immaterial, provided that imaginative outlook, combined with the technical training, are provided for

The recent Hadow Report on Qualifications, Recruitment, Training and Promotion of Local Government Officers, emphasises the desirability of university education for the individuals filling the more responsible administrative posts in local government. Without overstressing this point, we feel bound to state that no education can be too good for such an important branch of public service as the management of publicly or privately-owned working-class estates, though academic education alone is obviously insufficient

Hitherto, the tendency has been for properly educated men to be unwilling to take on such work for the scale of pay customary for a woman housing manager. The minimum annual salary for a responsible manager, fixed by the Society of Women Housing Estate Managers, is £250, but there appears to be a tendency for actual salaries to increase, and the maximum of about £400, which could be expected at the present time, would probably be quite sufficient to attract suitable men, particularly in view of the fact that there is a definite shortage of good managers

The cost of good housing management will, of course, exceed that of the minimum attention needed for the bare collection of rents, but this additional cost is more than offset in the long run by other savings. Rent default is less likely to arise, and deterioration and the creation of new slum conditions is almost impossible. One of the chief difficulties arises with extremely small estates, where it is impossible to apply principles of sound management, and anything which will lead to the grouping of house property ownership, or, at any rate, of management, is likely to do more to prevent the creation of slums than any other single move. There are signs that this is occurring slowly as the result of the increase in property companies, but there are, of course, many cases where the present owners are unwilling to sell. It would seem that the setting up of some form of co-operative house

management organisation for this class of property may be of great value. No other system seems likely to give the advantage of skilled management unless it be the compulsory acquisition of property by local authorities.

Some local authorities and house property managers are building up a reserve fund from the unexpended portion of the rents allocated to maintenance and repair, but in other cases the rents are fixed at the bare minimum to cover expenditure, and no reserve funds are available. In such cases there are no reserves which can be drawn on when, owing to improvements of standards of living accommodation, new types of fittings and equipment are needed, and it appears likely that part of the equipment of existing housing will be unduly out of date at the end of say 20-30 years, examples being coal ranges and coppers. In other cases, such as gas and electric cooking and heating apparatus, the replacement of obsolete types is the function of the local supply undertaking.

Something more than a maintenance fund for the replacement of existing fittings with others of identical type is needed. At present the only method of doing this is to charge an increased rent as and when the improvements take place. This is unsatisfactory on many grounds—the tenant feels that it is the business of the landlord to keep the property up to date, and both tenant and landlord continue to put off the introduction of improvements. An exceedingly small weekly sum would be sufficient to create an adequate fund over a term of years, and, except in the case of the very cheapest property (and probably also even there), some such provision seems highly desirable in every proposed scheme. We are of the opinion that such an allowance for improvements should be included in the provision for repairs and maintenance, and not added to rent as and when the need arises.

The value of regular and immediate repair of property is, of course, well known, but it would appear to be insufficiently regularly carried out in practice. Particularly in the case of small-scale property management, when the work is done by unsupervised agents, great waste occurs through delay in carrying out repairs, and a state of constant irritation and ill-feeling arises among the tenants, which usually leads to endless trouble later. The grouping of estates mentioned above would do much to help in this respect.

Another point which is likely to be of increasing importance in the near future may also be considered here. In the majority of the private enterprise housing estates since the war, the houses have been purchased by means of building society loans by owners who have little or no capital reserves, and but a small margin of income over expenditure. In the event of any major repair becoming necessary—such for instance, as the eradication of dry rot, the underpinning of settlements or rebuilding of walls—it is difficult to see quite where the money is to come from, even taking into consideration the loan powers of the Local Authorities under Section 47 of the Housing Act 1980. In the past the landlord, even if only a comparatively small owner, has had some reserves on which to draw, and generally the tenant has not had to pay any additional rent for such repairs.

The landlord has, moreover, always tended to resist any action by the tenant likely to depreciate the value of the district as a whole. Under present conditions there is no control of the individual provided he does not create a public nuisance, or under the provisions of the Town Planning Acts (where they apply) does not carry on a trade. Overcrowding, due to the unregulated admission of lodgers, is already a serious problem in some districts. It is reasonable, therefore, to expect on such estates a more than usually rapid deterioration, which it is difficult to see how to control.

Regulations Controlling the Condition of Working Class Housing

The following is a survey of existing regulations under the Housing Acts and Public Health Acts controlling the maintenance of dwelling houses in a reasonably fit condition for human habitation.

We would draw attention to the fact that some of this legislation can only be put into operation after it has been adopted by the Local Authority for their area, and that other sections depend upon Local Authorities making and enforcing by-laws. In most cases the authority, after having obtained power, is solely responsible for the carrying out of the regulations.

There are no national standards laid down for the guidance of the Authorities or their officers as to minimum standards, and administration may be lax or otherwise according to local conditions.

Ministry of Health Summary of House Maintenance Regulations*

Housing Act, 1925.

Under Section 1 there is an implied condition in the contract for letting of any dwelling-house for human habitation at a rent not exceeding £40 in the case of houses situated in the administrative

* Reproduced by permission of the Controller of H. M. Stationary Office from Ministry of Health publication 82/9999 (1984) "Housing".

county of London and £26 elsewhere, that the house is, at the commencement of the tenancy, in all respects reasonably fit for human habitation, and an implied undertaking that the house will be kept by the landlord in the same condition during the tenancy

Section 8 imposes a duty on the Local Authority to cause an inspection of their district to be made from time to time with a view to ascertaining whether any dwelling-house therein is unfit for human habitation. Under the Regulations made under this Section the Medical Officer of Health or other officer designated by the Local Authority has to examine the state of the houses in relation to

- (1) Pure water supply
- (2) Closet accommodation
- (3) Drainage
- (4) Light, circulation of air, dampness and cleanliness
- (5) Paving, drainage and sanitary condition of yards or outhouses
- (6) Arrangement for deposit of refuse and ashes
- (7) Condition of underground rooms
- (8) Any defects tending to render the houses dangerous or injurious to health

Section 18 enables the Local Authority to make a closing order in respect of an underground room used as a sleeping place and such a room is deemed to be unfit for human habitation unless it is 7 ft. high and complies with the regulations prescribed by the Local Authority with the consent of the Minister securing the proper ventilation and lighting of such a room and the protection thereof against dampness, effluvia and exhalation

Section 68 enables a Local Authority to make by-laws for the management, use and regulation of dwelling-houses provided by them and imposes a duty on them to make by-laws as respects lodging-houses provided by them

Section 69 enables a Local Authority to inspect at any time dwelling-houses provided by them under Part III of the Act

Section 91 gives a Local Authority power to lend money to the owner of a house for the purposes of carrying out works of reconstruction, enlargement or improvement of the house provided that the Local Authority are satisfied that after the works are carried out the house or building will be in all respects fit for human habitation as a dwelling-house or as a house for the working classes

Section 135—dwelling-house is defined and includes any yard, garden, outhouses, and appurtenances belonging thereto or usually enjoyed therewith

Housing Act, 1930

Section 62 (1) provides that for the purposes of this or the principal Act, *i.e.*, the Act of 1925, the expression "sanitary defects" includes a lack of air space or ventilation, darkness, dampness, absence of adequate and readily accessible water supply or sanitary accommodation or of other conveniences and inadequate paving or drainage of courts, yards or passages. Section 62 (3) provides that in determining, for the purposes of this Act, whether a house is fit for human habitation, regard shall be had to the extent, if any, to which by reason of disrepair or sanitary defects the house falls short of the provisions of any by-laws in operation in the district, or of the general standard of housing accommodation for the working classes in the district.

Section 17 gives a Local Authority power to require the repair of insanitary houses. They have power to serve notice on the person having control of a house which is unfit for human habitation and which can be rendered fit at a reasonable expense, requiring him to execute the works specified in the notice which, in their opinion, will make the house fit for human habitation.

Section 18 empowers a Local Authority themselves to perform the work necessary to make a house fit for human habitation if the person served with the notice fails to do so, and enables them to recover the expenses incurred.

Section 20 empowers a Local Authority to make a closing order in relation to any part of a building which is let for human habitation as a separate tenement or in relation to any underground room which is deemed to be unfit for human habitation, and to determine the order when the premises have been rendered fit.

Under Section 23 if a person has appealed against a notice requiring the execution of works to a dwelling-house under Section 17 and the court has allowed the appeal on the ground that the house cannot be rendered fit for human habitation at a reasonable expense, the Local Authority have power to acquire the house by agreement or compulsorily and are then required to execute works specified in the notice themselves.

Section 47 empowers a Local Authority to make advances to persons in respect of repairs to houses in certain cases

Section 51 places a duty upon the Medical Officer of Health to inspect and make representations regarding any dwelling-house which is unfit for human habitation.

Powers under Public Health Acts

Local Authorities have wide and extensive powers under the Public Health Act, 1875, to ensure decent and sanitary conditions in dwelling-houses in their district. They can require the proper drainage of undrained houses (Section 28), and the provision of sufficient sanitary arrangements and ash-pits (Sections 86-87). On receipt of a written complaint regarding the conditions of privies ash-pits, etc., the Local Authority can cause an examination to be made and if the privy, etc., is in a bad condition the Local Authority can require the owner or occupier to do the necessary works, and if he fails to perform the works the Local Authority may execute the works themselves and recover the costs from the owner (Section 41). Local Authorities have power to undertake or contract for the cleansing of privies and ash-pits (Section 42), and where they do not themselves undertake or contract for such cleansing they can make by-laws imposing the cleansing duties on the occupier of the premises (Section 44).

An Urban Authority may also make by-laws for prevention of nuisances arising from snow, filth, dust, ashes and rubbish, and for the prevention of the keeping of animals in premises so as to be injurious to health (Section 44). The Urban Authorities have power to provide receptacles for the deposit of rubbish (Section 45).

Where on the certificate of the Medical Officer of Health or any two medical practitioners it appears to the Local Authority that any house or part thereof is in such a filthy or unwholesome condition that the health of any person is affected or endangered thereby or that the whitewashing, cleansing or purifying of any house would tend to check or prevent infectious disease, the Local Authority can require the owner or occupier of such house or part thereof to whitewash, cleanse or purify the house, and if the person to whom notice is given fails to purify the house within the time specified he is liable to a penalty, and the Local Authority may cause the works to be carried out and recover the expenses from the person in default (Section 46).

Any person in an urban district who keeps any swine or pig-sty in any dwelling-house or so as to be a nuisance to any person or allows waste or stagnant water to remain in a cellar or place in a dwelling-house for 24 hours after written notice from the Urban Authority to remove it or allows the contents of any water closet, privy or cesspool to overflow, is liable to a penalty and the Urban Authority shall abate or cause to be abated every such nuisance (Section 47).

The Inspector of Nuisances in an urban district can require the removal within 24 hours of any accumulation of manure, filth, etc., which he thinks ought to be removed (Section 49).

Section 71 enables a Local Authority to prohibit the occupation of cellar dwellings, but existing cellar dwellings may be let or occupied if they comply with certain conditions (Sections 71 and 72).

Local Authorities have a duty imposed upon them to inspect their district in order to see what nuisances exist therein and to take steps to secure the abatement of the nuisance (Sections 91-107). Amongst other things, the following are deemed to be nuisances for the purposes of the Act —

- (1) Any premises in such a state as to be injurious to health.
- (2) Any pool, ditch, etc., or sanitary convenience or ash-pit so foul or in such a state as to be injurious to health.
- (3) Any animal kept so as to be injurious to health.
- (4) Any accumulation or deposit which is injurious to health.
- (5) Any house or part of a house so overcrowded so as to be dangerous or injurious to the health of the inmates.

Under the Public Health (Water) Act, 1878, it is the duty of every rural Sanitary Authority to see that every occupied dwelling-house within their district has within a reasonable distance an available supply of wholesome water sufficient for the domestic purposes of the inmates of the house (Section 8).

Under the Public Health Acts Amendment Act, 1890, Section 21 deals with the cleanliness of sanitary conveniences used in common by the occupiers of two or more separate dwelling-houses or by other persons and gives the Authority power to see that they are kept in a clean and proper condition.

Under Section 28 an Urban Authority has power to make by-laws regarding sanitary conveniences, the structure of floors, hearths and staircases and the height of rooms intended to be used for human habitation, and the paving of yards and open spaces in connection with dwelling-houses.

Section 24 provides that where any portion of a room extends over privies, etc , it shall not be used as a dwelling or sleeping room

The powers under Sections 23 and 24 have been conferred on Rural District Councils by the Rural District Council (Urban Powers) Order, 1981

Under the Public Health Acts Amendment Act, 1907 (Section 25 adoptive) a Local Authority can require the owner of a dwelling-house to execute all such works as are necessary for the effectual drainage of the sub-soil or surface of a yard

Section 85 extends the provisions of the Public Health Act, 1875, as to nuisances, and provides that (1) any cistern used for the supply of water for domestic purposes which is so placed, constructed or kept as to render the water therein liable to contamination which is likely to cause risk to health, (2) any gutter, drain, etc , of a building by reason of its insufficient or defective condition is likely to cause damage to any building or any adjoining building, and (3) any deposit of material in or on any building or land which shall cause damp in such building or adjoining building so as to be dangerous or injurious to health, is deemed to be a nuisance within the meaning of the said Act

If the Local Authority have grounds for believing that the drains of any building are defective so as to be dangerous or injurious to health, they may authorise their Medical Officer, etc , to test the drains, and if they are defective, require the owner to remedy them within a reasonable time (Section 45) If it appears to the Local Authority on report that cesspools, ash-pits, wells, etc , belonging to any house are prejudicial to health they may require the owner or occupier to fill them up or remove them (Section 46)

Under Section 49 a Local Authority have power, in any case in which it appears to them that a building is not provided with a proper sink or drain or other necessary appliance for carrying off refuse water, to require the owner or occupier to provide such sink, drain or other appliance

Under the Public Health Act, 1925 (Section 20) a Local Authority has power to require courts, etc , to be paved and drained.

*Section 45 provides that if it appears to a Local Authority on a certificate of the Medical Officer or Sanitary Inspector that any articles in any premises used for human habitation in the district are infested with vermin or by reason of their having been used by or having been in contact with any person infested with vermin are likely to be so infested, the Local Authority at their expense may cause such articles to be cleansed or destroyed, and, if necessary, for that purpose, to be removed from the premises, and where a person sustains damage by reason of the exercise by the Local Authority of these powers and the condition of the article in respect of which those powers have been exercised is not attributable to his act or fault, the Local Authority shall make reasonable compensation to the person

Section 46 enables a Local Authority to procure the cleansing of verminous houses, and they can give notice to the occupier or, if the premises are vacant, to the owner requiring him to cleanse the premises and the notice may require, among other things, the removal of wall-paper or other covering on the walls and the taking of such other steps as the Local Authority may require for the purposes of destroying or removing vermin

In all cases where power is given to the Local Authority to require the owner or occupier to perform some act and he fails to do so, the Local Authority can themselves perform the necessary works or act and recover the cost from the owner or occupier as the case may be

By-laws

Sections 6 and 7 of the Housing Act, 1925, give Local Authorities the powers of making and enforcing by-laws with respect to houses intended or used for occupation by the working classes and let in lodgings or occupied by members of more than one family

The following are the statutory sub-headings under which by-laws may be made

- “(a) For fixing and from time to time varying the number of persons who may occupy a house which is let in lodgings or occupied by members of more than one family, and for separation of the sexes therein
- (b) For the registration and inspection of such houses
- (c) For enforcing drainage and promoting cleanliness and ventilation of such houses
- (d) For requiring provision adequate for the use of and readily accessible to each family of
 - (i) closet accommodation;
 - (ii) water supply and washing accommodation,
 - (iii) accommodation for the storage, preparation, and cooking of food,

* It should be noticed that the sections of this Act to which reference is made are not in force in any area until adopted by an Urban or Rural District Council

and, where necessary, for securing separate accommodation as aforesaid for every part of such house which is occupied as a separate dwelling;

- (e) For the keeping in repair and adequate lighting of any common staircase in such houses
- (f) For securing stability, and the prevention of and safety from fire.
- (g) For the cleansing and redecoration of the premises at stated times, and for the paving of the courts and courtyards
- (h) For the provision of handrails, where necessary, for all staircases of such houses
- (i) For securing the adequate lighting of every room in such houses,

and any such by-laws, in addition to any other penalty, may prohibit the letting for occupation by members of more than one family of any such house unless the same are complied with, subject in the case of houses so let or occupied at the time when such by-laws come into force to the allowance of a reasonable time for the execution of any works necessary to comply therewith."

It will be seen that the powers are very wide and empower a Local Authority by by-law to impose upon the owner duties which involve the execution of works.

Moreover, where an owner has failed to execute any works required under the by-laws the Local Authority may, in pursuance of Section 7 of the Act of 1925, after not less than twenty-one days' notice, execute the works and recover the costs and expenses

When a Local Authority has under the Housing Act, 1930, declared an area to be an improvement area, Section 8 of the latter Act places upon it a statutory obligation to make and enforce by-laws, under Sections 6 and 7 of the Act of 1925, for preventing and abating overcrowding in the area and generally for securing the improvement of housing conditions and subsequent maintenance of a proper standard of housing conditions therein

The Minister has caused model by-laws to be prepared for the help and guidance of Local Authorities under both these enactments. Experience has shown that most of the Local Authorities who have made by-laws have followed the model series for the purposes alike of the Acts of 1925 and of 1930 *

Licensed Life for Building

Any consideration of upkeep and repair is, in reality, a problem of balancing the real value of higher capital expenditure and consequent lower maintenance costs with lower capital expenditure and higher maintenance costs. It is actually possible to design buildings so that maintenance charges, due to natural ageing of the structure, are all but non-existent. Alternatively, maintenance charges may be a very high proportion of the annual outgoings when, through bad design or false economy, the building costs have been too greatly cut

Existing building legislation appears to be based on the assumption that it is desirable to design all buildings with a view to perpetual life, while the majority of private builders of houses appear to aim at a comparatively short life, the length of which is governed very largely by the terms of the ground lease where they are building leasehold property. Neither assumption is wholly desirable, and there appears to be an unanswerable case for the provision of a limited or licensed life for buildings. Until some such system is agreed, any discussion of the balance between first cost and maintenance is illimitable

Considerable discussion on this subject has appeared from time to time in the technical press, and, so far as can be seen, there would be no great difficulty or cost involved in extending the present regulations with regard to temporary buildings under Section 27 of the Public Health Acts Amendment Act 1907 to all buildings, or possibly to all buildings used for human habitation. Under this section, the local authority can already limit the time a temporary structure may remain either inhabited or in existence, and may lay down such requirements in connection with possible health and fire risks as they see fit.

It would be necessary to define some limits to their actions which now, as in other cases, vary from place to place, and may be lax or unduly restrictive according to the individual views of the authority concerned. Some general guide would also have to be laid down as to the number of years' licence granted in the first instance. This might be dependent on the construction of the proposed building. At the end of the licensed period, the then owner would have the right to apply for an extension of life, and this would be granted for a further limited term, provided the building reached certain standards of repair, convenience and amenity. Notice of the certificates would be entered at the land registry, in the case of registered titles, and would form part of the title to the property in the same way as any other restrictive covenant. These standards, which would necessarily alter from time to time, would be embodied in a series of models for urban, semi-urban and rural areas, as in the case

* End of M O H abstract.

of the Model By-laws, and would contain most of the essential standards outlined in Section III¹ of this Report. The principal objection to such a scheme lies in finding a suitable licensing body. The difficulty is, of course, identical with that which arises in dealing with the compulsory demolition or improvement of slums, and is inevitable wherever vested interest exists. Experience in connection with valuation for rates and income tax, compulsory acquisition of land, compulsory clearance orders, and so on, is, however, becoming wider, and in each case similar problems arise. There seems, therefore, no reason to doubt that ultimately a suitable technique and organisation could be built up to carry out the work without undue friction, and this is a matter to which further attention should undoubtedly be devoted.

The effects of such regulations would be of considerable use in the prevention of the growth of slums. At the moment there is no method, other than those outlined above, of forcing owners to keep property up to any agreed standard either of repair or convenience—provided, of course, that it does not become either dangerous, grossly overcrowded, or a public nuisance—and although these regulations do enable a vigilant local authority to bring considerable pressure to bear on bad landlords, its use is limited by the lack of national standards, and is almost entirely dependent on the opinion of the local Medical Officer of Health.

As standards of accommodation improve, such a licensing scheme would automatically bring existing property up-to-date, and while it might react hardly on the worst type of property owner, it would not be onerous on owners who have a regular arrangement for the improvement of their property. It would also tend to provide a more constant building load than is now the case.

Maintenance Costs

There appears to be considerable need for a full enquiry into the maintenance costs of buildings. At the moment there are no published figures showing the proportion of such expenditure arising from the various materials used in connection with building, neither are there any well recognised standards by which it is possible to judge what may be considered reasonable expenditure in this respect. While the variations between one building and another must make such figures only of limited use, there are certain points which could ultimately be settled with some degree of certainty. For instance, the true economic merits of wood as opposed to steel windows.

It is not possible in a report of this nature to go into the detailed points which give rise to maintenance costs, but here, as elsewhere, there appears to be great need for the pooling of experience gained by both public and private property managers. We have considered this under the heading of Economic Research, in Section VII.² There is no doubt that at the moment many building owners are using, either experimentally or in blind faith, materials and systems of construction which have been fully and carefully tried by others and found unduly expensive to maintain. A joint publication prepared by three or four of the leading local authorities, having wide experience of housing, and perhaps made the basis of a Ministry circular, might save innumerable mistakes by other authorities faced with similar problems. Innumerable examples of gross failure due to lack of knowledge of the experience of others can be quoted. It is also felt that arrangements should be made by some authority, preferably the Building Research Station, to be present during all the important demolition contracts. Daily evidence as to the behaviour of building materials and types of construction is lost, simply because there is no organisation for the collection and tabulation of this vital information. In this connection it is, perhaps, well to consider the relative cost of demolition of various systems of construction. At the moment, it is usually possible to arrange for the demolition of brick buildings in lime mortar without charge, i.e. the value of salvage is about equal to labour and cartage costs plus housebreakers' profits. Even under these conditions, buildings are too often allowed to stand long after the end of their true economic life. If, however, as a result of the utilisation of monolithic systems of construction, the cost and difficulty of removal is largely increased, the tendency to leave buildings standing long after they should have made way for more up-to-date structures becomes far more serious. We have in mind a number of recent multi-storey factories of reinforced concrete, the removal of which would appear to be an almost impossibly expensive undertaking. Since the rate of change in building requirements for factories is now greater than ever before, it might well be necessary in some cases to lay down regulations with a view to making easier the ultimate demolition of the building. The serious effect upon property values and amenity of derelict factories which are too expensive to remove is now commonly recognised in the industrial districts.

The same problem, as it affects houses and flat blocks, does not seem to have been given adequate consideration. While the advantages of cement mortar, and concrete and steel construction are now commonly understood, too little consideration has been given to the difficulty and cost of the removal of large structures of this type.

¹ See pages 39-42

² See pages 130-134

VII. RESEARCH AND STATISTICS

(1) CENTRAL STATISTICAL SERVICE FOR THE BUILDING INDUSTRY

We are strongly of the opinion that a central statistical organisation for the building industry is of vital importance. If the Government housing programme is to be carried out, some reorganisation is inevitable, and it is highly important, first, that any such change should be made only with a full survey of the facts, and, secondly, that these facts should be commonly available to all those in the industry. The difficulties arising from lack of information are well known in other industries, the most obvious case recently being in connection with the Agricultural Marketing Acts.

Existing Statistical Services

The following is a brief survey of the better known existing sources of information.

(1) *Building Industries' National Council*

One of the chief objects of this organisation was to increase building activity at the bottom of the last slump by suitable propaganda. Its work is mainly based on existing published figures, and, as far as statistics are concerned, the output of new and original work has perforce been more or less confined to the field of propaganda.

(2) *Building Research Station*

Concerned primarily with scientific research on materials. Does not touch organisation and only in isolated instances the economics of the industry.

(3) *Building Centre*

Concerned primarily with putting buyers in touch with the producers, and only secondarily with general questions of organisation. Has no regular arrangement for collection of statistics or for research into the possibilities of any form of reorganisation.

(4) *The Garden Cities and Town Planning Association*

Has for some 30 years been collecting and disseminating technical information in Housing and Town Planning subjects, particularly in connection with the formation and working of Public Utility Societies. Publishes a quarterly review, *Town and Country Planning*, dealing with Housing and Town Planning progress throughout the world.

(5) *Housing Centre*

Recently set up and so far mainly directed towards interesting the public in slum clearance and housing. Acts as a clearing house for information in connection with slum clearance and in the collection of information as to planning, accommodation, needs, standard of living, etc.

(6) *Trade Papers*

The work of some of these is of the utmost importance but is usually spasmodic and unrelated. The sections covered are:

(a) Surveys of slum clearance needs and conditions in one or two papers have given some valuable leads but are limited in utility because they relate only to a few towns, and are spasmodic in appearance.

(b) Weekly surveys of prices of materials, labour costs and wage rates, by all the chief papers, give a fair general guide to costs but only deal with part of the subject. Moreover, published prices do not always give the full picture in the case of many materials.

(c) Records of price trends over a period of time. Occasional charts are published, usually in January.

(d) The bulk of the matter published in the trade papers consists of articles descriptive of recent buildings, both at home and abroad. It is noteworthy that details of costs are rarely given and many articles do not give more than a superficial account of the buildings illustrated, i.e. the main interest is in design.

(e) Notes on the relation of capital to labour, and on the structure of the industry, are a feature in some papers

(f) Notes on office organisation and such matters as time and progress schedules occur occasionally in some papers

(g) Work proposed and started and tenders placed All the papers have some organisation to record coming contracts and some are limited to this sole question This is of vital importance to the trade but is capable of considerable improvement with co-operation and a more consistent method of collecting the information

(h) Abstracting from home and foreign journals This, a vital service in most of the scientific trades (e.g. the Chemical Society Abstracts which have appeared for more than fifty years) is almost totally ignored in the building industry The Building Research Station publishes an excellent series dealing mainly with scientific publications The R I B A journal has occasional notes, but they cover very few sources and abstracting and indexing is spasmodic The general press has overlooked this function It is understood, however, that the R I B A hope to extend this service when labour is available, starting where the Building Research Station Abstracts leave off

(7) *Libraries*

Failing other sources, architects make considerable use of their libraries for enquiries

(a) R I B A The largest architectural library in the world Being recatalogued, but at present depends almost entirely for its usefulness on the astounding knowledge and helpfulness of the staff The collection is of the first importance and historically it is almost perfect, but there are serious gaps in its technical and trade sections This is perhaps evidence of the present change in the basis of the industry noted before

(b) Architectural Association A smaller library, also dependent upon the ability of the librarian for its usefulness Has a good selection of books on modern design and Continental work

(c) Garden Cities and Town Planning Association A specialist library having a very complete collection of books dealing with town planning in Great Britain and abroad

(d) Others The periodical libraries of the Science Museum and the Patent Office Library are very complete, but are not used to any great extent by architects and the trade Certain other professional associations overlap with building, e.g. Electrical Engineers, Surveyors' Institution, Civil Engineers

(8) *Advertising Agents*

Such market research—usually on proprietary materials—as is done, is chiefly carried out by the advertising agents There is no co-operation between them, and the wastage of effort resulting must be quite incredible Some work is being done now in a casual way by the Building Centre All workers agree as to the extraordinary lack of information available The Building Centre receive on an average four market research enquiries a week, showing that the industry is beginning to recognise the need for such work

(9) *Trade Associations*

In nearly all sections the materials industries have set up sales development and service associations. Among these may be mentioned as examples

National Federation of Clay Industries
National Asphalt Mine Owners' Council
Glazed and Floor Tile Association
British Steelwork Association
Coal Utilisation Council
British Commercial Gas Association
Electrical Development Association
Electric Lamp Manufacturers' Association
Cast Concrete Products Association
Rubber Growers' Association
Copper Development Association

Their functions range from the ordinary price- and trade term-fixing organisation to a real service organisation

The difficulty lies in the fact that many, or perhaps most, cannot divorce the propaganda side from the service and survey side. Information given varies from optimistic propaganda, to something as nearly impartial as can be expected. The importance of obtaining the right man in charge cannot be exaggerated. It should be noted that those most recently formed and most closely connected with the industries dependent upon the applied sciences are much the most helpful. These come nearest to recognising that in the long run successful sales development must be dependent on getting each material put to the use to which it is best suited.

(10) *Public Authorities*

A great deal of information is available to Public Authorities which is not published in the ordinary way. There are often sound reasons why this should not be made available to every chance enquirer, but much of it which would be useful could probably be made available through the central organisation which we envisage.

(11) *Special Committees*

Finally, there are a certain number of special committees from the reports of some of which much useful information can be obtained. These may be either Government Committees, which usually deal more with housing than building, except, for instance, the Departmental Committee appointed to survey the prices of building materials, the results of which are unfortunately of limited value, or private committees. Among the latter the Council for Research on Housing Construction and the Amulree Committee have recently produced very valuable reports.

The Architects' Unemployment Committee is also carrying out a good deal of research into the surface utilisation of London and into town planning statistics. Started in the slump as an emergency relief measure, it should be carried on as a permanent research organisation. It is one of the few relief schemes that have attempted any constructive work and for this reason it is of the utmost importance, not only to the industry, but to the country as a whole.

(12) *Town Planning Research* is mainly carried out by the two town planning organisations which have collected a great deal of information, much of which has been made the basis of recent legislation.

This list is obviously incomplete, and the comments on the various existing organisations can only be expressions of opinion. In the main, the obtaining of information in the industry depends upon the kindness of individuals, many acting in a private and unofficial capacity, who give freely of their own knowledge and experience. The building industry is sufficiently large and wealthy not to have to depend upon such chance organisation and the private generosity of its members.

The wastage of time, labour and effort is considerable and the results of any research undertaken under existing conditions must always be inconclusive and unnecessarily inaccurate. Some centralisation and co-operation seems essential.

Proposed Central Statistical Organisation

The type of organisation which seems desirable would follow very closely on the lines of the statistical and economic departments of the Society of Motor Manufacturers and Traders, or the Incorporated Association of Retail Distributors. The general technique evolved by the latter in collecting and analysing data supplied by individual firms, in conjunction with the Statistical Department of the Bank of England and the London School of Economics, might well be followed. It is essential that such an organisation should be wholly divorced from any propaganda or publicity work, and that it should be staffed by men having knowledge, not only of the building trade, but of the services required by other industries and of the technique of collecting, analysing and presenting information.

The need for the supply of industrial information is being more widely realised and a good deal is now known as to the methods of procedure which are likely to prove successful. It is difficult to give any idea of the costs of such a service until the exact ground to be covered has been settled, but it is understood that the very efficient organisations mentioned above have cost something of the order of £5,000 per annum for the first two or three years, and about half this to maintain thereafter. In the case of the building industry, rather more work would be required owing to the wider field covered, but much of this could be, and in some cases is being, done by existing organisations, and all that is required is a central collecting house to act as a co-relating authority, and to prevent the overlapping which must otherwise occur.

It is noteworthy that the three chief central bodies in the gas industry have recently co-operated in setting up a central co-ordinating authority to deal with the use of gas for industrial purposes. Such

a scheme in the building industry would probably best be run by a joint committee of architectural, quantity surveying, and trade bodies, with representatives of the other existing organisations

The following notes suggest some of the points that require consideration by such an Information Centre. Many of them have, of course, been indicated in other sections of this report

(1) Ultimately some codification of building law is essential, and a collection of by-laws, obscure Acts, orders, and regulations affecting building is a necessary preliminary. At the moment, application for permission to more than eighteen authorities or separate sections of those authorities is said to be necessary for any major building in London, and, despite careful enquiry, there appears to be no one authority who can produce even a skeleton list of them

There is an increasing tendency for building concerns to operate outside their own immediate area and there is much to be said for this, but the fact that building regulations are different in every area does much to hamper any such development. There is not even, so far as is known, a published list setting out the districts in which the various permissive sections of the Public Health Acts have been adopted

A survey of the restrictions on rapid commencement of building by landowners and other authorities would also be of great use, and would, at any rate, reduce the number of mutually destructive regulations now in force. It is understood that two important authorities who often come into contact, both have standing orders that they must be the last to append their signature to any agreement. A case is quoted where, owing to this rule and to infrequent meetings, a delay of over four months occurred. The financial loss is obviously considerable.

(2) A regular survey, available to the trade, of the variations in cost of building in different districts and an analysis to show the causes seems desirable. It is understood that the Ministry have such figures but they are not generally available in a readily utilisable form. The estimated and ascertained costs of new systems of building could also be collected and co-ordinated

(3) Many public authorities call for tenders for materials and fittings to be in accordance with samples deposited in their own offices. Enormous simplification might ensue if the samples could be forwarded for inspection to some central showroom. This would tend to decrease the number of patterns and types called for and do much for standardisation. Local jealousy might prevent the co-operation of some Provincial Authorities, but a start could be made with the London Authorities

(4) A central clearing house to provide information on which the usual market research reports could be based is urgently required. The need for such work is being increasingly realised in this country and the building industry must ultimately fall into line with other industries. This presupposes the existence and co-operation of an efficient statistical research organisation

(5) A central clearing house giving accurate summaries of work proposed is vitally needed, organised preferably on the lines of the F. W. Dodge service in U.S.A. rather than on those of the trade papers

(6) The industry has as yet hardly considered the possibilities of economies dependent upon improved management technique, such as the Taylor or Bedaux systems, and the whole field of Industrial Psychology is as yet unexplored. The drawing up of reports on these subjects showing their possible applications might be considered

(7) A great deal of scientific research carried out both privately and by Government Stations is not applied as quickly as it should be, largely because the reports and papers published by scattered bodies never receive the publicity that they should, and because many of them are published in an indigestible form. A central organisation could do much to spread this knowledge, and a regular and popular bulletin, while it might offend the pure scientist, would be of real help

(8) In France, the price at which every sale of land and buildings takes place appears to be regularly reported, and one function of the proposed Building Centre in Paris will be to collect this information. The difficulties confronting such an organisation in England are, of course, colossal, but there is no doubt that, if it could be done, it would do much to stabilise land values and would be of incalculable value in land purchase for working-class housing

(9) The preparation of an exhaustive classified list of trade names would be an important function of the central organisation

(10) It could also provide a central bureau of information on the progress of building and building technique abroad, with information on housing needs, accommodation, standard of living, etc., and so would increase the rate of introduction of new ideas from abroad

(11) Following on this point, it would tend to level up the differences in the attitude of local authorities to the introduction of new methods. The wide publication of lists of authorities who would permit, say, one pipe drainage, would make it difficult for others to refuse to do so unless some genuine local difficulty could be shown. Ultimately, of course, there will have to be a change of the present state of the law and any scheme passed as sound by the approving authority mentioned on page 32 will have to be permitted throughout the country. Meanwhile much can be done by the gentle light of publicity.

(12) It could produce a standard index for trade catalogues and also a standard size and form. This has been very successfully arranged by the American Institute of Architects, and the English architects are very favourably disposed to such a scheme. It might also do much to increase the usefulness of the content of advertisements.

(13) It would collect information on training facilities available in the various branches of the industry, both at recognised technical schools and in private firms. A report on the training desirable for entrants to different sections of the industry would be of great value to education authorities. A central authority, well known to the public, where information could be obtained as to the prospects and training requirements, would be of great use to parents of possible entrants.

(14) It might produce some co-operation between the various libraries. The present overlapping in the collection of foreign and obscure publications is serious. It should provide a really complete technical abstracting service, starting where the Building Science Abstracts of the B.R.S. leave off. It is probable that a wide circulation can be built up, perhaps in combination with an existing journal if of attractive format and popular content.

(15) At the moment the law of libel makes it dangerous to give information as to the value of proprietary and some non-proprietary materials. It is vital to the trade to know the results obtained from a particular material or fitting. The need is not fully met even by Building Research Station testing under more or less laboratory conditions. Such tests are comparatively rare and their cost precludes their regular adoption. It is, however, met by a scheme such as that devised by the Hospitals Information Bureau, and if this can be shown to be legally safe it would probably be a most important function of such a body. The sale of report sheets, if carried out by a live organisation, would produce a considerable income, and their cost of compilation is negligible.

The Hospitals' organisation was primarily set up with a view to co-ordinating the systems of accountancy employed by the various voluntary hospitals, and as a statistical survey authority. As a result of receiving enquiries as to the desirability of inaugurating alterations in hospital routine and organisation (e.g. the time of waking patients) a system of questionnaires was set up, and these have been extended to cover building materials. For example, a questionnaire in connection with rubber flooring was sent to a large number of hospital authorities. The replies were tabulated and published without the names of the hospitals concerned. They are sold to members of the organisation at a small sum—generally 2d or 3d to cover printing costs. The value of this to those interested in new building or re-equipment is incalculable, and the bureau is of general interest as being the first piece of research solely from the consumer angle known in the building industry. It would appear to be applicable to a great variety of products where the information required can be based on the lay observance of the behaviour of the material rather than on purely scientific enquiry.

(16) There is a very real need for a more satisfactory unit of measurement in connection with housing. The objections to the present system of basing prices and discussions on the cubic foot of space or square foot of floor area are widely realised. It seems that a much more widely applicable yardstick could be devised to the very real advantage of the building industry as well as the statistician. Much work on this is known to have been done already, and such an authority as we have in mind is undoubtedly the most suitable body to carry this work forward and ultimately to arrange for its regular acceptance.

(17) Several of the building materials industries have a regular export market and in certain sections the turnover is sufficiently high to make it possible for companies concerned to set up full sales organisations. This is, however, neither always possible nor always done even where it is possible, and one of the functions of the proposed body would be to make regular reports on the prospects of particular markets for building materials, and to do all in its power to encourage such sales with a view largely to increasing factory turnover and so reducing costs at home. The complete change-over in Spain from British goods to Central European goods some few years ago, can be traced more directly to lack of knowledge of the market conditions on the part of British manufacturers than to price advantages in favour of their competitors. The countries in which building is at present very brisk—e.g. Palestine, Denmark, Portugal and South Africa, all tend to follow Continental practice in building,

and require hardware and other imported goods to resemble German or Italian types rather than the English types, and for this reason, if for no other, a survey of market conditions and requirements would be necessary before British producers could hope to obtain a larger share of imports. Ultimately, perhaps, it might be possible to organise an export sales corporation for building materials and household fittings capable of obtaining finance, maintaining stocks and organising sales campaigns in overseas markets on a scale impossible even for many of the larger building materials producers individually.

(18) These are but a few of the lines on which research is needed. Some are already being tackled spasmodically, but all require planning and co-relation. The scheme will only work if it is directed with wide vision, and the results must be presented in popular form if it is to receive the attention which is necessary on the part of the industry as a whole. The difficulty of interesting those who have no scientific training, and no knowledge of the value of economic research in the results of such work as is outlined above, is well known, and is likely to be particularly serious in the building industry, which has but little direct contact with foreign developments, or even with the commonplaces of current organisation in other industries. It is felt, however, that the difficulty has in the past been greatly increased by the forbidding aspect of many scientific and official publications. The research organisations have not yet tried the effect of well got up and illustrated booklets, written wholly for the industry. So far as the pure scientist is concerned, this is naturally uncongenial, but even the Church in the dark ages made use of popular presentation, and once interest is aroused the greater part of the battle is won.

(II) RESEARCH

The Changing Basis of the Building Industry

It can be said with certainty that at the moment the value of scientific research has not been realised by the building industry to anything like the extent that it has in most other industries. It is pointed out elsewhere in this report¹ that the industry has always been one based on tradition, and only recently has there been any sign of the change now completed in most others from a basis of tradition to one of applied science. A purely traditional craft has much to be said for it—failures are always comparatively rare and standards of workmanship and quality of products are usually high. Provided that the industry is self-contained, a good case can be made out for maintaining the traditional craft basis, but much trouble will arise as soon as contact with other industries occurs. The building industry, which touches in one way or another on almost all other important industries, has maintained its traditional basis longer than any of them, but the difficulties of so doing are becoming almost daily more apparent, and a complete change will inevitably take place in the present generation.

It is interesting to note the extraordinary rarity at the present time of the employment of men with a scientific degree in the contracting side of the industry, as compared with the executive branches of, say, engineering, or even cotton. So far as we can ascertain, there is no firm of contractors who employ a research staff or maintain a laboratory, and even the routine testing of materials purchased is almost unheard of, at any rate, outside the public works and semi-engineering section of the industry. When it is done, it is almost invariably put out to one of the privately-owned testing laboratories. The number of architects having a degree in Science, or even any general scientific knowledge, is also exceedingly small.

In the materials industries the position is rather different. Glass, steel, cement and, more recently, some plasters and paints, are often made under strict scientific control, and most firms engaged in these industries maintain a research department as well as routine testing laboratories. It may be said, as indeed is the case with most industrial research in private hands in this country, that there is far too little co-operation between the workers in different concerns, which is often held to be an inevitable difficulty of unrestricted competition. Experience in other industries shows, however, that when the costs of research are beyond the financial resources of any individual unit a powerful stimulus to co-operative action exists. Such a situation exists in the building industry, but owing to the large number of small units and to the intensity of competition, co-operation is bound to be exceptionally difficult. There is also a general lack of appreciation of the possible benefits of scientific research.

Existing Research Organisations

The greater part of the research carried on in the building industry is undertaken in conjunction with the Department of Scientific and Industrial Research.

The following list shows the more important of the various stations carrying on work likely to be of help to the industry.

¹ See page 81.

National Physical Laboratory, Teddington	Particularly in connection with iron and steel metallurgy and acoustics
Building Research Station, Watford	The principal station for the industry
Forest Products Research Laboratory, Princes Risborough	Timber research, largely on Empire products
British Food Manufacturers' Research Association	In connection with thermal insulation problems and food storage
Fuel Research Station, Greenwich	Fuels for small stokers, and cheap plastic products
Water Pollution Research	Domestic and commercial water supplies and water softening
Research Association of British Rubber Manufacturers, Croydon	Rubber, mainly for flooring
British Non-Ferrous Metals Research Association, London	Mainly in connection with plumbing trades
British Electrical and Allied Industries Research Association, London	Wiring and electrical fittings and appliances
British Cast Iron Research Association, Birmingham	Iron castings, mainly in the field of pure metallurgy
Research Association of British Paint, Colour and Varnish Manufacturers, Teddington	Paints and varnishes

Expenditure on Research

It is difficult to give any very detailed figures of the total expenditure on research by the industry, partly owing to the fact that some is carried out privately, and partly owing to the fact that it is impossible to ascertain the cost of the research carried out by organisations primarily concerned with other trades which can be utilised by the building industry. It is, however, worth drawing attention to the fact that the grants from public funds are much larger in proportion to the sum raised from the industry itself in the case of building, than the average of all other trades. The following table shows the relation of income raised from industry in relation to grants from the D S I.R. over the whole range covered by the Department

Year	No of Research Assns in receipt of grants	Income raised from industry	D S I R Grants	Industry contribution as approx. percentage of total
		£,000*	£,000*	
1918	4	0	10	0
1919	8	10	30	25
1920	17	100	60	60
1921	21	110	90	55
1922	21	110	90	55
1923	21	120	100	55
1924	21	110	100	50
1925	20	120	90	55
1926	21	110	80	60
1927	19	110	60	65
1928	19	120	50	70
1929	20	150	80	65
1930	20	160	80	65
1931	20	160	90	65
1932	20	170	70	70

* Expressed to nearest £10,000

On the average in recent years it will be seen that between 65 and 70 per cent of the total income of the D S I.R. research stations is raised from the industry. In the case of building research the figures for 1932 are:

	Total Expenditure 1932 £'s	Receipts by the stations 1932 £'s	Per Cent of Total
B R S.	42,199	7,680	18.2
F.P.R.L.	41,688	7,846	23.4

The most important research station from the point of view of the building industry, is the Building Research Station at Watford, which in turn controls the Road Research Station at Harmondsworth, and which works in close co-operation with the National Physical Laboratory in certain sections of its work, notably that of acoustics

The source of the receipts by the station is not known, but by far the largest proportion comes from firms in the industry requiring special investigations. A certain amount is subscribed by the professional bodies, but these generally lack funds themselves, and the total figure is not large. The R I B A, for instance, pays about £80 per annum to the Building Research Station and a smaller sum for certain other research purposes. The extraordinary value of the work already done by the B R S for the industry is far too little realised, and it is felt that with rather more publicity for the immediate practical use of their work there should be no great difficulty in increasing the funds available from subscription.

Scope of Research Needed

It will be seen that a very wide field is covered by research associations in the building industry. This is, of course, inevitable, owing to the nature of the industry. It is not suggested that all the organisations are concerned to anything more than a minor degree with the problems of building, but at some point or other their work impinges on it. For instance, the most complete figures in connection with thermal conductivities are given in the reports on food preservation. Pipe corrosion is dealt with mainly by the British Non-Ferrous Metals Research Association, water softening by the Water Pollution section, and even fuel research is at some points connected with building.

It is partly due to the extraordinarily wide scope of the industry, a scope which is fortunately unique, that scientific research has made so little headway. It is impossible for a firm of contractors to do any really valuable research without a large staff and expensive equipment. Moreover, the contacts between various materials are so numerous, and the problems so varied, that unless the research worker has a wide practical knowledge of the industry as well as a more than usually wide scientific knowledge, he is bound to make mistakes, and to suggest systems that, for entirely unexpected reasons, prove impracticable, and so his help is dismissed as useless. To take the comparatively simple case of research on plasters, there must, of course, be not only a full knowledge of plasters and cements, and the walling materials on which they can be applied, but also of their likely effects on many metals, on oils, fats, and waxes, on adhesives, papers and printing inks, on rubber and on wood, quite apart from a vast knowledge of technique, custom of the trade and uses to which the material may be put.

Apart from research carried on by the D S I R, there are certain industries which carry on research in their own interests, sometimes on a co-operative basis, the most important being, perhaps, the clay industries, but the total expenditure on the whole of this class of work is relatively small, and more is actually carried on for the benefit of individual companies and is never published.

Attention should be drawn to the effects of the general organisation of the D S I R and to the financial arrangements as they affect the building industry.

Consumer Research

As each research association was set up it was the intention that it should become more and more self-supporting as it grew in strength, and that ultimately all research associations should be mainly dependent on payments from members of the industry concerned. The result has been a general bias towards research from the point of view of the manufacturer, rather than from that of the consumer. In the building materials industries this is particularly noticeable in the case of paint research. The Paint and Varnish Research Association is almost solely concerned with the manufacturers' problems. It publishes little or nothing of help to its largest consumer, the building industry, and there is not, at the moment, any means of obtaining published results of independent tests into the life of the various types even of non-proprietary paints—and the need for this particular item of "consumer" research is considerable. If, for reasons of policy and finance, it is not possible for it to be done by the Paint Research Association, it should be immediately undertaken by the B R S. Consumer research depends for its usefulness on the confidence with which the consumer regards the research organisation. For this reason, if for no other, it appears that the B R S is the only independent body available for carrying out such work. This draws attention to the need for adequate financial support for the B R S.

If funds are stunted, there is bound to be a tendency for the work done there to be in connection with proprietary materials, for the testing of which individual firms are likely to pay, and little of the vital research into common structural materials will ever be carried out. It may be said that if the industry, as a whole, needed this work, it would pay for it, and that there is no adequate argu-

ment for treating the building industry more generously than other industries. Logically, this is true, but there is no doubt that a higher proportion of the work needed in this industry is of the nature of consumer research, which alone probably justifies a higher proportionate grant owing to the universal difficulty in raising funds for such work. Neither can quite the same co-operation be expected from such a wide-spreading industry, with such a small proportion of men with scientific training.

Practical Application of Research

This last point also provides a peculiar problem for the research workers. In other industries their reports—usually couched in scientific phraseology—will, at any rate, be understood by and be of interest to a substantial proportion of the executives. In the building industry, however, this is not the case, and it is common to hear men of recognised position declare that the publications of the B.R.S. are “beyond them,” although these publications are normally exceptionally well expressed. It would seem that until the proportion of men with scientific training employed in the industry is greatly increased, it is necessary to publish such reports in two sections, the second—and actually the more important—being a résumé of the first expressed in trade terms and in an extremely simple and practical form. There seems also to be an advantage in giving rather more time and money to the presentation of these reports. It has been found that the sale among architects of technical books is influenced, to an unusual degree, by the general format of the book. If, therefore, by the use of attractive covers, more diagrams—coloured if necessary—good printing, wide margins or any other similar device, the popularity of the reports can be increased, this should be done. The problem of “getting across” the results of scientific research to architects is essentially different from similar problems in other industries and must be tackled in its own way. We are fully aware that the B.R.S. recognize this, but we feel that they could well go much further. The publication of the monthly “Questions and Answers,” dealing with problems submitted to the B.R.S., is one excellent example of the ways in which the station is attempting to get its work accepted. It is, however, a pity that these must necessarily be mainly a record of failures that have occurred due to lack of knowledge on the part of the industry rather than on account of the excellent new work done.

Arising out of this point we have been struck by the fact that, at the moment, we can find no text book on building materials in general use in the building industry which takes into account the results of recent research, and that the examinations of many of the professional bodies are based on text books which are unnecessarily out of date, if not inaccurate. It is suggested that it is highly desirable for the B.R.S. itself to prepare such a book, as it alone has the requisite information and knowledge. Owing to the rapid changes taking place it should be published in separate parts, each dealing with one of the various groups of materials, so that it could be the more readily kept up to date. The work should be carried out in close co-operation with the examining bodies of architects and quantity surveyors and should be simply expressed and fully illustrated. No single move could so certainly interest the coming generation in the work of the research stations, much bad building would be prevented, and the sales both among students and older men would certainly be considerable, probably sufficient to realize a profit.

Full-Scale Experiments

Owing to the nature of the industry no research can be of real value until it has been tried out on a full scale. We have drawn attention to the need for an authorizing body for permitting the trial of new systems of construction in Section II,¹ and we regard this, and the pooling of knowledge gained by housing authorities in their own work, as most important steps towards more economical and more rational building. It should be noted that this is not as costly as might at first sight appear to be the case. It is not suggested that whole blocks should be erected in the research stations, and subsequently demolished, but only that access should be given for research workers to watch the progress of new blocks, and to the blocks after they have been tenanted. The additional cost of such investigation over the bare cost of building the block would be comparatively very small. It might be possible to make free access to the work for such investigation one of the conditions on which a subsidy was granted, and it would certainly be a condition of any permission to erect experimental blocks outside the present legal limits.

Research from the Point of View of the Tenant

One further aspect of research should be mentioned, namely, in connection with the user of buildings. It is urgently necessary to know something of the limits of human fatigue, the number of stairs a woman can reasonably be expected to climb before a lift installation becomes necessary, the kitchen plan which will entail the least fatigue, the optimum ventilation conditions, the best form of sink and so on. Full use does not seem to have been made by the industry of the existing research organisa-

¹ See page 82.

tions capable of carrying out this work, such as the Institute of Industrial Psychology or the Industrial Health Research Board. There have, for instance, been numerous competitions organised for kitchen planning, but, so far as is known, these were assessed and prizes awarded on purely theoretical grounds, without the help of such organisations or of practical inquiry. This particular problem also draws attention to the need for correlating the sizes and design of the various fittings normally used in close proximity to one another. It has, for instance, been left to the research department of a firm of soap makers to try to get a series of sinks, wringers and washing coppers, designed and marketed so that they can be placed side by side economically and tidily. Co-operative work between material and fitting manufacturers belonging to different trades, but whose products are used in conjunction, is very rare. It offers, however, considerable opportunities for economies in fixing costs and possibly in manufacturing costs, and may well be more productive of real results than many of the completely new systems of building which receive so very much more attention.

In conclusion, it is felt that the most important criticism of the existing research organisations, both public and private, lies in the lack of direct co-operation in direction, and in their inability—in a non-scientifically minded industry—to get the results of their work accepted by the industry.

VIII. RATES

Incidence of Rates on Inclusive Rents

The very wide disparity between rates in different areas must play an important part in determining the choice of sites for building estates. It may even happen in some areas that the rates are so high as to place inclusive rents of even the cheapest type of house far beyond the reach of the lowest-paid worker. The following table shows the incidence on weekly rents of various rates in the pound for three different rateable values. The figures of £10, £18 and £20 have been chosen for the latter, since £10-£18 represents the usual rateable value of working-class houses in the provinces, against anything up to £20 in London.

INCIDENCE OF RATES ON WEEKLY RENTS

Poundage	Equivalent Weekly Charge at Various Foundages on a Rateable Value of					
	£10		£18		£20	
	s	d	s	d	s	d
5/-		11½	1	3	1	11
7/6	1	5	1	10½	2	11
10/-	1	11	2	6	3	10
12/6	2	5	3	1½	4	10
15/-	2	11	3	9	5	9
17/6	3	4½	4	4½	6	9
20/-	3	10	5	0	7	8
22/6	4	4	5	7½	8	8
25/-	4	10	6	3	9	7

Rates Levied by Local Authorities

The significance of rates in connection with inclusive rents for any particular area may be judged by the use of this table in conjunction with the following analysis of local rates charged in various administrative areas during 1988-84. The average rate for the whole country during this period was 10/9½ in the £, compared with 10/10 in 1982-88, and 12/5½ in 1928-29. The average is, however, of little practical importance in the housing problem, which is more concerned with a definite type of suburban area bordering on industrial towns. The first table shows the average of all rates in each Administrative County of England and Wales; the second of rates in County Boroughs, which are not covered by the first table.

AVERAGE RATES IN THE £ LEVIED IN EACH ADMINISTRATIVE COUNTY IN ENGLAND AND WALES, 1983-84

	Under 9/-	9/- to 10/-	10/- to 11/-	11/- to 12/-
ENGLAND (excl Monmouth)	Cornwall (8/8) (Silly) Rutland (8/4) Surrey (8/10) Hereford (8/10) Westmorland (8/8) Isle of Wight (8/-)	Bedford Berks Bucks Cambs Devon London Northumberland Somerset Southampton Sussex (E) Sussex (W)	Chester Dorset Isle of Ely Gloucester Herts Hunts Kent Lincoln (Kesteven) Lincoln (Lindsey) Middlesex Northants Notts Oxford Suffolk (E)	Cornwall Cumberland Derby Lancaster Leicester Salop Warwick Wilts Yorks (E Riding) Yorks(W Riding)
	12/- to 18/-	18/- to 14/-	14/- to 15/-	Over 15/-
	Essex Lincoln (Holland) Peterborough Stafford Worcester Yorks (W Riding)		Norfolk Suffolk (W)	Durham (15/7)
	Under 9/-	9/- to 10/-	10/- to 11/-	11/- to 12/-
WALES (with Monmouth)		Radnor	Flint	
	12/- to 18/-	18/- to 14/-	14/- to 15/-	Over 15/-
	Montgomery	Anglesey Denbigh Merioneth	Brecknock Caernarvon Cardigan Pembroke	Carmarthen (18/10) Glamorgan (19/4) Monmouth (17/7)

RATES IN THE £ LEVIED IN EACH COUNTY BOROUGH IN ENGLAND AND WALES, 1933-34

	Under 9/-	9/- to 10/-	10/- to 11/-	11/- to 12/-
ENGLAND (excl. Monmouth)	Blackpool (7/6) Bournemouth (7/9) Brighton (8/8) Darlington (8/10) Eastbourne (7/10) Oxford (7/6) Southport (8/-)	Canterbury Exeter Gloucester Hastings Wallasey	Bath Carlisle Croydon Huddersfield Newcastle Plymouth Portsmouth Southampton Southend W. Hartlepool	Birkenhead Bristol Bury Chester Doncaster Northampton Reading S Shields Tynemouth Wolverhampton Worcester
	12/- to 13/-	13/- to 14/-	14/- to 15/-	Over 15/-
	Bolton Burnley Burton Coventry Oldham Preston Rochdale Stockport York	Barrow Blackburn Bootle Yarmouth Grimsby Ipswich Leicester Middlesbrough Sunderland	Barnsley Birmingham Leeds Nottingham Smethwick	Bradford (17/8) East Ham (17/-) Halifax (15/-) Kingston-upon- Hull (18/2) Lincoln (16/-) Liverpool (15/11) Manchester (15/6) Norwich (18/10) Rotherham (17/-) St Helens (16/-) Salford (15/9) Sheffield (16/-) Stoke-on-Trent (17/2)

ERRATUM

RATES LEVIED BY LOCAL AUTHORITIES

The data used in the compilation of the tables on pages 186, 187 and 188 have been obtained from the Ministry of Health Statement of the Amount of the Local Rates per Pound of Rateable Value, 1934.

These figures emphasise the wide range of rates between different localities, and illustrate the tendency towards a higher rate in County Boroughs—generally urban districts of 100,000 inhabitants or more—than is usual in the case of most Administrative Counties. The latter cover a wide area, inclusive of purely agricultural and rural districts, and of municipal boroughs and urban districts. Since it is around industrial towns and not in the rural districts that additional housing on a large scale is likely to be required, the rates levied in municipal boroughs and urban districts are of more practical importance than the average rate levied throughout the Administrative County. The following table gives a random selection of rates levied in 1933-34 in municipal boroughs and urban districts throughout the country:

RATES IN THE £ LEVIED IN 1933-34 IN VARIOUS MUNICIPAL BOROUGHS AND URBAN DISTRICTS

ENGLAND	s	d		s	d		s	d.
<i>Home Counties</i>			<i>Eastern Counties</i>			<i>North</i>		
Hayes	12	0	Thetford	16	6	Keighley	13	9
Enfield	11	9	Lowestoft	14	0	Batley	15	0
Acton	9	8	Cambridge	9	0	Barnoldswick	14	0
Heston	10	8	Peterborough	12	2	Castleford	13	0
Hornsey	8	11	Spalding	14	0	Swinton	16	8
Luton	8	9	Gainsborough	10	0	Darwen	11	6
Barnet	10	4				Bacup	14	0
Watford	10	8				Fleetwood	10	6
Chungford	11	6	<i>Midlands</i>			Nelson	11	10
Ilford	12	10	Bromsgrove	12	0	Carnforth	10	6
Walthamstow	14	9	Redditch	11	8	Royton	11	8
Dagenham	14	6	Rugby	10	10	Tyldesley	13	0
Hornchurch	11	10	Nuneaton	14	6	Jarrow	17	9
Gravesend	10	8	Wellington	10	8	Stockton	15	9
Gillingham	11	8	Loughborough	12	4	Bishop Auckland	15	4
Dartford	9	8	Coalville	12	0	Chester-le-Street	16	8
Erith	11	0	Hinckley	12	4	Whitehaven	12	4
Carshalton	8	11	Tamworth	13	4	Gosforth	9	6
Coulsdon	9	0	Cannock	13	2	Blyth	10	0
Banstead	9	4	Rugeley	11	4	Hexham	9	8
Slough	9	10	Newcastle-under-					
<i>South-West</i>			Lyme	15	0	WALES		
Gosport	9	6	Chesterfield	14	0	Llanelly	17	2
Poole	10	8	Ilkeston	18	0	Neath	16	2
Barnstaple	8	0	Bolsover	11	10	Penarth	15	2
St Ives	12	2	Worksop	11	6	Rhondda	22	9
Taunton	9	10	Mansfield	12	2	Barry	17	0
Swindon	15	0	Crewe	14	0	Ebbw Vale	17	0
Stroud	11	2	Macclesfield	11	10	Pontypool	14	0
			Stalybridge	15	6			

One fact emerges from the above analysis with some clarity—that while rates in many urban districts in the Midlands and the North are likely to prove an embarrassment to any attempt to provide houses at low inclusive rents, in the depressed areas, notably Durham, parts of Lancashire and West Yorkshire, and Wales, they threaten to defeat any such attempt at the outset. Even if it is possible to rely on working-class houses being assessed at a rateable value of £10 per year, poundages of 15/- to 20/-, which are quite common in such areas, would result in a weekly charge on inclusive rents of 8/- to 4/-, with a rateable value as high as £13, the charge would be increased by a further 1/-. If decent housing is to be provided for wage-earners with low incomes at rents which they can afford to pay in the depressed areas, we have come to the conclusion that some form of subsidisation is inevitable. Since the difficulty arises through high rates, the obvious remedy would appear to lie in the derating of working-class houses, and we consider that attention should be given to the practical aspects of this solution. The problem is one of poverty rather than of housing, but unless the obstacle is removed, we cannot see how satisfactory accommodation can be provided in the depressed areas at the requisite low rentals.

Derating of Working-Class Houses

Local rates are nothing but a form of taxation, and it is a commonly accepted maxim that taxation should be based upon capacity to pay. So far as the wage-earner is concerned, rates form a house-tax of from one to five or more shillings a week per house, according to the assessment and the rate levied. Two to three shillings per house is probably the most frequent figure, and this means a tax of from 8 to 7½ per cent of income for a family living on, say, 40/- to 60/- a week. In extreme cases the percentage may be well over 10. The position is made even worse by the tendency of rates to be high in depressed areas, and low in areas which are prosperous, while for the individual family rates go up in proportion to the space occupied and are therefore a powerful agency in encouraging overcrowding. The general effect of rates may be compared with that of the notorious window tax.

The case for this imposition is all the weaker because rates go largely to the support of social services, which are predominantly for the benefit of lower-paid workers. We have the position that, for example, a little milk is distributed free to undernourished children whose parents, too poor to buy them a proper diet, are nevertheless paying perhaps 8/- or more weekly in this form of taxation, which has to be returned to them in social services, many of which would be superfluous if their purchasing power were not inadequate.

The usual reply to this argument is that rates are a separate problem which needs tackling on its merits, and that nothing can, or should, be done *ad hoc* for the lower-paid workers. A complete overhaul of rates is no doubt desirable, but obviously nothing so large is likely to be undertaken for many years, meanwhile vast damage is being done to health. The fact that piecemeal action is perfectly feasible is shown by the derating of agriculture (wholly) and of industry and freight transport (partly), achieved through the Local Government Act, 1929, and other measures. If special relief can be arranged for "deserving" industries (including brewing), surely special relief can be arranged for "deserving" people.

The form which derating for working-class housing might take needs careful examination. The chief requirements are that any system proposed should not give a fresh lease of life to undesirable property, and that it shall ultimately result in reduced rents for the lowest-paid classes of tenant. The first necessity seems to be that a definite and plainly applicable series of minimum standards for housing should be laid down by the Ministry of Health, as outlined on page 89. It is possible that one standard might be laid down for new housing, and a complementary one for existing or reconditioned housing. Having decided upon this standard, the Government might announce that all housing up to the required standard at present letting at not more than, say, 12/- per week inclusive, would be wholly derated, the necessary compensation to Local Authorities being paid out of national taxation.

Since it is estimated that the total rateable value of houses assessed up to £18 per year rateable value is one-fifth of the total rateable value of all property, i.e., one-fifth of £274,000,000, the cost of wholly derating this class of property, at the present average level of rates, would be about £29,500,000 annually. From this estimate should, of course, be deducted all houses which do not qualify for derating, which would probably be a considerable proportion of the older houses in industrial areas.

It is, however, probably desirable to follow the precedent of industrial derating and to limit the reduction of rates by, say, 75 per cent of the present figure, in order to give all classes of the population some interest in the financial arrangements of Local Authorities. This would probably make the proportion of total income paid in rates by the lowest-paid classes more or less comparable to the proportion paid by the richer classes.

The probable effects of such a move would be

- (a) A large mass of housing, though not classified as slum, would fall below the minimum standard and fail to qualify for derating.
- (b) A substantial amount of housing would at once, or with minor alteration, qualify for derating and this would be granted on terms which, as in the case of rent restriction procedure, would ensure that the benefit went directly and wholly to the tenant.
- (c) Housing which can now be undertaken for inclusive rents of 10/- to 11/- would at one stroke be turned into housing to let at 7/- to 9/-, exclusive of any further savings in costs which might be realized, and a vast new market would be opened.

It is admitted that the scheme can be subjected to criticism on many grounds, and we have attempted to set out the most important of these below:

- (1) In fact, much of the benefit in the case of new houses would be lost by the increase in building costs—i.e., the builder and building material producer might obtain most of the advantage. Since, however, the assessment determines the value of the house for derating, some automatic control would occur; inflation of costs would only tend to lead to an assessment above the qualification limit and would defeat its own ends.
- (2) Certain classes of houses which have already been built with the benefit of subsidy, would obtain a double subsidy. This is a fact, and it is very difficult to see how remedies could be found, at any rate in connection with those built under the Chamberlain scheme of 1923, when lump sum grants were made to builders for houses for re-sale. The extent of the problem is, however, dependent upon the rateable value figure laid down for the upper limit of the scheme. It would appear that a large proportion of the houses built by subsidy are rated at £10 and over, and that a substantial proportion fall outside the limit.
- (3) Trouble would arise in connection with sub-tenancies. It would undoubtedly be necessary to make arrangements for the compulsory apportionment of rates on sub-divided houses on application being made by the tenants. The procedure would, however, not be dissimilar to that now in operation for the compulsory apportionment of rent in suitable cases when the property is rent-controlled.
- (4) A measure of rent control for dwellings qualifying for derating is essential. It should be possible so to devise a scheme that the control of rent did not also involve control of tenancy. The chief real objection (apart from those raised by objectors to any form of

control of profiteering) to the present Rent Acts is that they effectively prevent the repair, improvement and development of property owing to the impossibility of obtaining vacant possession. Under such a scheme, the landlord could obtain possession in the ordinary way when the tenancy of the property was not already controlled. If, after repair or development he still desired to qualify for derating, the rent would remain fixed at the old level, or increased by not more than a certain percentage of the cost of the work done, as is now the case under the Rent Control Acts. If, however, the improvements were sufficient to alter the whole nature of the property, the assessment would automatically rise and the property become ineligible for derating.

- (5) Derating would produce new anomalies between families housed in property immediately above and families housed in property immediately below the proposed derating limit. This is an anomaly common to all housing subsidies. As things stand to-day, it is exceedingly unfair that one family with a given income should pay much more for insanitary accommodation than another family with similar income pays for more and better accommodation in a subsidised dwelling. Any increase in number of the families benefited does not increase the basic anomaly of any form of subsidy. This problem is really the old one of the undesirability of any form of subsidy on grounds of equity. But in the case of derating it could be partially met by the adoption of a sliding scale of rate relief, dealing generously with the lowest categories and extending a lower rate of relief to houses of higher rateable value.
- (6) Persons well able to pay existing rates who happened to live in low-rated property would benefit unfairly unless there were also an income limit and a means test. It is probable that there are, in fact, very few such cases, but even should this be so, it is an argument which can be levelled against the derating of industry equally—there can be no effective means test in connection with any form of subsidised housing except in the case of local authorities and voluntary housing associations.
- (7) It would increase the work of assessment committees, and would draw attention to the anomalies in assessment already well known to exist in most areas, and to the wide variations in practice as between one area and another. This is admitted, but it is a criticism of existing rating practice and law and not a criticism of derating as a scheme.
- (8) Assessment committees would become the subject of political and other outside pressure. This is probably true, though it would be difficult to prove that such committees are not already liable to outside pressure, both political and personal. It is in the main a criticism of local government practice.
- (9) It would involve a change in rating law and would increase the work of local authorities. Any proposals must necessitate Parliamentary action, and to change rating law is no more unreasonable than to change any other existing law. Local authorities have already been drawn into dealing with similar questions with regard to assisting housing, as, for instance, in the case of the registration of decontrol under the various Rent Acts, and increasing regulation of housing under local authorities is in any event inevitable if the existing slum problem and the prevention of the formation of new slums is to be tackled.

While we put the scheme forward for discussion, we feel that it presents grave difficulties as a general measure on the following grounds, though we would once again draw attention to the necessity for extraordinary measures in the depressed areas.

- (a) Subsidisation in the past has proved inequitable and unsatisfactory, and given an adequate long-term housing policy and the application of the results of scientific and management research the cost of building relative to that of other commodities can be reduced and the need for subsidisation diminished if not entirely eliminated.
- (b) It would be difficult to get the Treasury to agree to subsidising local ratepayers to the necessary extent (especially in view of recent difficulties over the finance of unemployment assistance).
- (c) The scheme is so complicated that the drafting and working of the necessary legislation would present grave difficulties.
- (d) The administration of the scheme would be extremely difficult, involving, as it would, the creating of new anomalies and probably a sense of grievance among some sections of the public.

It is difficult, however, to suggest any other scheme, if a subsidy is held to be necessary, which will ensure that the benefit goes to the tenants of existing as well as new houses, and which will directly encourage the improvement of bad property.

The Cost of Derating Working-Class Houses

In considering the probable cost of this scheme it was found that there were no published figures available on which to base an estimate. It was therefore necessary to obtain figures, hitherto unpublished, from a number of local authorities. The following tables are prepared on the basis of these figures, and although they do not cover many areas they are in all probability a reasonable sample. We wish to express our thanks to the finance officers who made this work possible.

RATEABLE VALUE OF WORKING-CLASS HOUSES IN CERTAIN CITIES

A. BIRMINGHAM (April 1st, 1984)

	Number of Assessments	Rateable Value £	% of Total Rateable Value of City
(1) Dwelling Houses			
Up to £10 R.V.	180,846	954,524	14.2
£10 to £18 R.V.	87,402	402,981	6.26
Total up to £18 R.V.	157,748	1,875,505	20.46
Over £18 R.V.	77,984	1,847,772	27.5
All dwelling houses	235,682	3,223,277	47.96
(2) Other property	48,416	3,495,998	52.04
TOTAL	279,098	£6,719,270	100.0

NOTE—Dwelling houses were distributed between private and municipal ownership as follows.

Rateable Value	Private		Municipal	
	No.	Value £	No.	Value £
Up to £10	114,885	904,697	5,511	49,827
£10-£18	14,418	167,617	22,924	259,864
Over £18	8,407	1,692,852	9,527	154,920
TOTAL	197,660	£2,765,166	88,022	458,111

B. LIVERPOOL (April 1984)

	Number of Assessments	Rateable Value £	% of Total Rateable Value of City
(1) Dwelling Houses			
Up to £10 R.V.	44,964	886,009	5.79
£10-£18 R.V.	86,871	486,428	6.55
Total up to £18 R.V.	81,885	822,482	12.34
£14 and over	89,985	1,949,889	28.26
Total	171,270	2,771,821	41.6
(2) Other Property	41,675	3,890,968	58.4
TOTAL	212,945	£6,662,789	100.0

C. MANCHESTER (April 1984)

(1) Dwelling Houses			
Up to £12 R.V.	85,001	1,784,448	26.8
Over £12 R.V.	87,894	772,160	11.6
All Dwelling Houses	172,894	2,556,608	38.4
(2) Other Property	48,774	4,088,434	61.6
TOTAL	221,168	£6,645,042	100.0

	Number of Assessments	Rateable Value £	% of Total Rateable Value of City
D LEEDS (January 1982)			
(1) Dwelling Houses			
Up to £10 R V	76,850	546,400	17.4
Over £10 R V	48,525	1,009,088	32.2
Total Dwelling Houses	124,875	1,556,488	49.6
(2) Other Property	28,189	1,588,472	50.4
TOTAL	158,014	£3,144,910	100.0
E SHEFFIELD (April 1984)			
(1) Dwelling Houses			
Up to £18 R V	91,616	801,673	26.86
Over £18 R V	34,996	817,315	26.87
Total	126,612	1,618,988	58.23
(2) Other Property	20,857	1,422,469	46.77
TOTAL	147,469	£3,041,457	100.0
F BRISTOL (April 1984)			
(1) Dwelling Houses			
Up to £9 R V	16,896	129,490	4.6
£9-£11 R V	18,186	187,865	4.9
Total up to £11	30,032	267,355	9.5
Over £11 R V	47,542	1,120,820	40.80
All Dwelling Houses	77,574	1,388,175	49.8
(2) Other Property	28,825	1,408,641	50.2
TOTAL	105,899	£2,796,816	100.0
G NOTTINGHAM (April 1984)			
(1) Dwelling Houses			
Up to £10 R V	42,895	841,165	18.86
£11 R V	5,766	68,426	8.41
£12 R V	4,288	51,896	8.77
Total up to £13 R V	52,944	855,987	24.54
£13 R V and over	20,118	487,967	26.27
All Dwellings	73,057	948,954	50.81
(2) Other Property	18,560	918,880	49.19
TOTAL	86,617	£1,857,884	100.0
H LEICESTER (April 1984)			
(1) Dwelling Houses			
Up to £10 R V	26,879	228,888	13.31
£10-£13 R V	12,639	146,166	8.58
Total up to £13 R V	39,518	378,054	21.89
Over £13 R V	21,870	509,569	29.90
All Dwellings	60,888	882,623	51.79
(2) Other Property	12,050	821,721	48.21
TOTAL	72,988	£1,704,844	100.0

SUMMARY
(EIGHT CITIES, APRIL 1984)

CITY	Rateable Value £ mills	Percentage of Total Rateable Value Represented by					
		All dwellings (except where attached to shops) %	Dwellings with R.V. up to and including				
			£9	£10	£11	£12	£13
Birmingham	£6 72	48 0	—	14 2	—	—	20 5
Liverpool	£6 66	41 6	—	5 8	—	—	12 8
Manchester	£6 65	38 4	—	—	26 8	—	—
Leeds	£8 14	49 6	—	17 4	—	—	—
Sheffield	£8 04	53 2	—	—	—	—	26 4
Bristol	£2 79	49 8	4 6	—	9 5	—	—
Nottingham	£1 86	50 8	—	18 4	21 8	24 5	—
Leicester	£1 7	51 8	—	13 3	—	—	—

It will be seen that the proportion of total rateable value represented by dwelling houses of all kinds varies from 38 4 per cent and 41 6 per cent in commercial cities, such as Manchester and Liverpool, with a high proportion of *non-derated business property*, to 53 2 in a city such as Sheffield, with a high proportion of *derated industrial property*.

It is unfortunate that the analysis of dwelling houses according to rateable value is not uniform for the different cities. It is evident, however, that any derating proposal would affect different towns to a very different extent. Thus, if all houses assessed up to £13 R.V. were derated entirely, Liverpool would lose 12 8 per cent of its rate revenue, but Sheffield would lose 26 4 per cent.

The figures for Birmingham and the response to enquiries in some other towns suggest that *most* houses rated at less than £10 R.V. are old houses in private hands, including practically all slum houses, whilst most post-war municipal houses are assessed between £10 and £13 R.V. Considerably more than half the houses in private ownership in Birmingham were assessed at less than £10, whereas only about one-seventh of the municipal houses were in this class. Well over half the municipal houses were assessed between £10 and £13. It should be noted that the former, in so far that they do not satisfy the minimum standard, would not benefit from derating of working-class housing.

Owing to the fact that there is no necessary uniformity of assessment as between different cities comparisons between them should not be pressed too far. They demonstrate sufficiently clearly, however, the enormous difficulties, financial and administrative, that would be met with in any derating schemes for working class property. It nevertheless remains that the present rating system is automatically excluding private enterprise from building houses of the requisite low rental in certain areas. If the Government places the onus of providing working-class housing on private enterprise, as it has done, it is surely somewhat illogical for it to continue to acquiesce in the existence of a rate system which tends to nullify the effects of its avowed policy in many areas.

IX. OPENINGS FOR COST REDUCTION

In an industry in which the demand is, or rather can be made, widely elastic, and in one section of which production has never yet reached much more than half that envisaged by the conservative estimates of the Ministry of Health, the usual objections to attempts to reduce production costs can hardly apply

The need for the provision of more working-class housing and for the rebuilding of domestic and industrial property is almost unlimited. The chief reason why this demand has never been tapped under pre- and post-war conditions by normal private enterprise is because the product is in the main too expensive for the buyer. In other words, the income of the average working-class family has been too small to enable it to buy as much shelter as is desirable either for comfort or efficiency.

So far as housing alone is concerned, the public is becoming fully conscious of the need, and there is an increasing insistence that some real progress must be made. We should like to draw attention also to the much less commonly realised need for industrial rebuilding. Almost endless cases can be quoted of factory and office buildings out of date, inconvenient, insanitary and in disrepair, and these must have a seriously harmful effect on those working in them, no less than the slums on those living in them. The same also applies to school buildings of local authorities, and the unsuitability of most farm buildings for modern methods of production must also be the source of much waste.

In all cases the reason that nothing is done is the same. New buildings cannot be provided economically because the cost of building is relatively too high. There is ample capital available, and both men and materials can be obtained and organised for the job. With present relative costs the problem would be the same under a Marxian economic system as under a capitalist one.

In the main we believe that housing of any reasonable standard for the lowest paid workers has never yet been provided without some adventitious aid. There is no doubt that the farm labourer's cottage was subsidised by the landowner, that the coalmasters built their villages, the canal companies their shacks, and that in some home industries, for instance in Sheffield, many Yorkshire villages, and Spitalfields, the houses were in fact workshops. Perhaps, however, the greatest single source of housing for the poorest workers has always been the natural decay of property. The majority of people living in London to-day are housed in buildings which were originally built for tenants of higher income groups. Almost the only examples which can be cited against this are the areas of "back to back" houses or barracks in the industrial Midlands and North. It can hardly have been said, however, even when built, that they were of "a reasonable standard," and it is probable that at the time there were large numbers of workers living in cellars and derelict property who could not have aspired even to such relative comfort.

This suggestion is advanced not with a view to showing the economic impossibility of producing adequate houses for the lowest paid workers, but to show the extent of reduction in costs needed. It proves beyond all doubt that successful results will not be obtained by *laissez-faire* methods, which have been given ample opportunity since the middle of the eighteenth century, but only by planned and sustained effort backed by all the resources of the modern State.

That the introduction of alternative methods will be attacked, and that difficulties will be placed in the way of their adoption, is inevitable. Each particular case can only be dealt with on its merits and as it arises.

It may, however, be legitimately hoped that the State will have the courage to cut through the present mass of restrictive legislation—local procrastination, inefficiency and prejudice—and permit the rapid introduction of new systems and materials as soon as they have been shown to be desirable.

Labour

The likelihood of objection from the point of view of organised labour is, we think, often exaggerated. In the past attempts at the more efficient utilisation of labour have too often meant reduced wages and reduced employment. The organisation of building on a long term policy and on a national scale must mean less of the present casual and intermittent employment, and it is thought that co-operation under such conditions is unlikely to be withheld from any scheme likely to help in the provision of working-class houses and the clearance of slums. There is no reason why the whole scheme should not include an undertaking against wage-reductions and for agreed control of entrants, and it presupposes some limitation of excessive profits.

Building Materials Industries

Opposition from some of the material manufacturing industries is, however, both more probable and more difficult to deal with. The probable lines on which opposition may occur are —

(1) Producing interests may be unreasonably reluctant to take up new and improved materials. The history of the introduction of the ternary lead alloys for water pipes is perhaps as good an example as any, although others can be quoted. It is reasonable, however, to suppose that the improved purchasing power which would result from working on a larger scale and on a long-term policy would be sufficient to overcome this.

(2) The increase of prices or the withholding of supplies. Those who consider that the whole of the housing shortage should be made up by unregulated private enterprise, and those in favour of the complete socialisation of production, generally agree in stating that in the event of a large scale housing policy actually being put into operation, it is probable that either prices of materials would rise or supplies would fall short of demand. Both parties quote examples to uphold their views, although it is difficult to produce incontrovertible facts, and the material manufacturers strenuously deny the very possibility of such an occurrence.

So far as we can judge, the organisation of most producers in the building materials industries is sufficiently complete to make some such occurrence at least a possibility. Under present conditions, the result will ultimately depend upon the proportion of public spirited men among those in control of the building materials industries.

There seems, however, no reason why arrangements should not be entered into with the industries concerned at an early stage, with a view to obtaining reasonable terms in exchange for long-term contracts and general stability of markets. If, however, in individual sections it is found that prices are in fact unduly raised, then certain other courses are open —

(a) In certain cases E B C could itself start manufacturing these materials. This is undesirable, as E B C is intended to build houses and not to produce building materials, and owing to the numerous materials and the wide variety of production technique involved, vertical organisation would, almost certainly, quickly prove unwieldy. But there is no reason why, in the last resort, it should not be possible to arrange for the production of materials in a few cases. Economically, also, such increase of production capacity is undesirable, but it is even more undesirable that the whole housing programme should be jeopardised by attempts to secure unreasonably high prices on the part of the building materials industries. Moreover, experience in other industries suggests that if this course were pursued in one or two instances and were known not to be merely a bluff, it should not prove necessary in many others.

(b) The same problem arose in connection with the production of munitions during the War, and something of the system of costings and control then organised could always be reintroduced. This was justified at the time as being of vital necessity to the nation, and at least as strong arguments can be produced in the present attack on the housing shortage.

(c) We believe that much could be done by careful publicity. There is no doubt that the nation is in earnest in its desire for an active housing policy. This force of public opinion, which has hitherto been largely neglected, could, if fully mobilised, be of considerable importance. Some idea of the possibilities can be seen from the recent publicity directed from the Ministry of Transport and the Post Office. In most cases hitherto the control of abuse by means of public opinion has been largely nullified by what amounts to a powerful censorship of news by the advertising interests. The patent medicine trade is a well-known example, but in the present case there is little advertising revenue in the non-technical press derived from building materials and allied products.

Detail Study

We believe that properly directed enquiry into the detail of building could produce in the aggregate considerable savings. The simplification of the design of parts in complicated mechanisms, with a view to cheapening manufacture and assembly is a commonplace of engineering practice. Perhaps the best example may be found in the more recent carburettors compared with the earlier types, although many other examples can be quoted from the wireless, vacuum cleaner, and motor car industries, and even occasionally from the mechanical toy trade. Study of such simplification appears to be all too rare in the building industry, and there is therefore some justification in quoting examples of what might be done.

The fixing of butt hinges on casements has not materially altered since the introduction of the wood screw. Both the fixed frame and the casement are housed (cut) to fit the leaf of the hinge, and either six or eight screws are driven. Rather over half the time taken to fix a pair of hinges lies in this

cutting of the woodwork. Throughout the Continent hinges are screwed to the face of the woodwork, and are combined with a strengthening plate to reinforce the necessarily weak mortice and tenon. There is no risk of causing the casement to bind through over-housing, and in fact the hinge must always be in the right position. All hinges fail through wear or corrosion of the knuckle joint, and the knuckle is equally exposed in both cases. The Continental system looks strange, and therefore unsatisfactory to our eyes, but probably our butts look equally odd to the Continental eye. In America there is a system of fixing hinges in a pair of holes bored to templates, one in the casement, one in the frame, and without screws.

The ordinary mortice lock may often cost more to fix than the total cost of the lock, but it is used because of the lack of security of the rim lock. It is possible to design the rim lock, without extra cost, so that it cannot be removed without at least as much trouble as it takes to cut out the panel or rail of a door with a mortice lock. Incidentally, this lock can be fixed somewhat more cheaply than the normal rim lock, as it is not necessary to house the door style to take the fore-end plate.

A German firm markets a shoe spring for doors that can be fixed in about one-sixth of the time taken to fit the ordinary English type. The fixing can be made at least as strong, or possibly stronger, than that of the normal type and it does not look in any way different when fixed.

Another German firm markets a tool for the removal of old mortar joints before repointing, here it must be remarked that although there is no great saving in time, the improvement in the work is considerable.

Yet another German firm markets a hardened steel nail which can be driven directly into brick or concrete, so doing away with the need for fixing blocks and cutting away for wood or other plugs.

Difficulties of Introduction of New Materials

Similar alterations in the customs in relation to range fittings, reinforced concrete shuttering and many other things have been brought to our notice. On the face of this it may be urged that if these ideas have not been introduced under the strenuous pressure of present day competition, they must in fact be of no use. We believe that the present organisation of the trade makes it almost impossible to introduce small improvements of this type. Some years ago an improved washer was submitted to various interested persons for use in making connections to the flanges of rolled steel joists. There was no doubt as to its theoretical advantages, and production costs were comparable with other types. The total possible sales on any one contract, however, were so small that the costs of getting the architect or engineer to trouble to specify it were many times the value of the order, and it was, we believe, dropped.

The average younger architect, who has the desire and the time to take an interest in the detail design of his fittings, is normally too small a customer to be able to interest a manufacturer, and the large offices are normally far too busy to spend much time on such points, even if they had staff with the necessary knowledge of production technique in the manufacturing industries concerned.

Returning to a consideration of hinges, some further difficulties are seen to arise. At the moment the Continental type of hinge plate is not made over here and the cost, since it must be specially made, is needlessly high. The average architect cannot afford, and probably would not be allowed, to experiment at the expense of the client on methods of fixing hinges, when any savings that might accrue would certainly not offset the costs on any one job. The average contractor does what he is told to do, and few have an experimental department. Even if architect or contractor made such experiments, there is no reason to believe that they would, under present conditions, publish the results, neither is there at the moment any way of bringing the results to the notice of those interested without the expenditure of much time and money. It may be urged that the hinge makers should do this. So far, however, they have not done so, and if they did, much of the saving, which is admittedly small in each case, although probably large in the aggregate, would be lost in the costs of introduction. Much of the saving also might go in increased profits which, however desirable in considering the hardware trade, will not produce cheaper building.

It seems, therefore, that an organisation is needed to undertake enquiry on these lines, publishing full details of the work together with carefully ascertained relative costs, and definitely attempting the logical redesigning of units of construction and arranging for their adoption by the trade as a whole.

It has been suggested that this is a field which should be tackled by the Government research stations. While the present admirable work carried on there will undoubtedly improve the technique of building and reduce the common failures, and so ultimately the cost, it must be admitted that financially the results are likely to be indirect and somewhat slow in appearance. By increasing the stringency of the standards of manufacture temporarily increased costs might even arise. The real objection, however, is one of personnel. Useful work on this line is only likely to be obtained from men having a very wide knowledge of the practice of the building materials industries no less than of

contracting. At the moment, the salaries available for men not appointed mainly on the grounds of scientific training, are unlikely to attract those with the necessary genius. There are also difficult problems of marketing and patent protection to which attention must be devoted.

Standardisation

There appears to be much misunderstanding of the possibilities of standardisation.

Under this term, what are really two distinct problems are commonly lumped together. In the first place there is standardisation of quality, and the laying down of minimum requirements in such a way as to simplify the task of specification writing and purchasing. Such standards are drawn up by committees normally having a majority composed of actual manufacturers, and it appears that the final standards as accepted are at best a description of the average quality of goods normally marketed, and, in some cases, do not even reach the average. It can easily be seen that a firm making an article of poor quality would be unlikely to accept a standard ruling out their products.

There are, of course, general arrangements for revising standards in an upward direction, but these are not normally put into action until the existing standard is, in fact, practically a dead letter. In the case of cement for instance, several revisions have been made, but despite this, even immediately after the acceptance of a revised standard, it will be found that manufacturers have advertised goods above the current British Standard Specification. If the standard lags behind normal production to this extent in an industry in which both buyers and makers are actively engaged in research and are desirous of effecting improvements, it is easy to see how slow revision is likely to be in the case of less up-to-date industries. From the point of view of the general progress of the industry the only form of standardisation of quality likely to make for rapid improvement is one imposed from outside, based on the best of existing products. This form of standardisation is, however, in general, never likely to result in great savings, and its main value lies in the simplification of specification writing and purchasing on the part of those not having a very full technical knowledge of the particular material in question.

In the second place, there is standardisation of design to eliminate waste in production. This offers a wide field for economy, but it has not yet gone very far in the building industry in this country. In some cases where it has been attempted, it has not greatly reduced redundant patterns, and has sometimes even made matters worse by inducing manufacturers to add one more pattern—the standard pattern—to their range. It must be admitted that the chance of widespread adoption of standardised components is more remote in the building industry than in others, largely owing to the notorious individualism of the architect. Impressive reductions in redundant designs in hardware were achieved in America by President Hoover when Secretary of Commerce, but, unless a great deal of propaganda can be indulged in, and some form of external pressure brought to bear, the difficulties must remain very great in this country owing to the multiplicity of selling outlets and the smallness of individual orders.

We are of the opinion that the strong purchasing power of E. B. C. will be able to make itself felt in this field and to effect a fundamental change for the better. In Germany and Sweden, despite considerably more work than has yet been done in England, the actual proportion of building materials of standardised design sold is still lamentably small, although the application of standards of quality and interchangeability is highly satisfactory.

Standardisation for interchangeability is, of course, of the greatest importance, and generally has made far greater strides than standardisation of quality. In the greater part of the building material field its adoption is now so general that little further economy can be looked for.

It is, perhaps, well to draw attention once again to the fact that standardisation of components does not necessarily lead to uniformity of the whole. Even the speculative builder uses the same door furniture, sinks, and so on throughout his estate, and there can be no objection if this is carried to its logical conclusion, namely, the use of the same fittings on all estates, and the increase in the number of fittings and components so standardised. Adequate variation to prevent monotony must be obtained from planning, layout, design and decorative treatment.

It is also well to draw attention to a more valid objection to the widespread adoption of such standards, namely, that they tend to make the introduction of improvements still more difficult. Thus, if sinks were standardised at the moment, it is practically certain that the normal 24" × 18" × 10" Belfast type would be chosen, although there is much evidence to show that the new types, having a soap shelf at the back, are superior. If there were a rigidly accepted standard, the chances of getting improved types taken up would be greatly reduced, and any work on increased standardisation must go hand in hand with provisions to ensure the speeding up of the introduction of new types and designs.

Time and Progress Schedules

Recent reports—such as that of the Building Industries National Council—have drawn attention to this American system of organisation of building work. We are of the opinion that the system in itself is sound, should be more widely adopted, and would lead to appreciable savings, although these may be less than might be imagined from the more optimistic claims made. We believe, however, that if the present undue emphasis continues to be placed on the details of this particular system, other equally important factors are likely to be overlooked. Thus, there is no doubt whatever that the organisation of work on the site is in many cases much inferior to that common in many other productive industries, but the Time and Progress Schedule alone is not enough, and as stated elsewhere, much wider enquiry is needed into the whole of the site organisation.

The form of schedule also appears to be taking on an unduly rigid aspect. There is, for instance, much to be said for the French type which takes into account the various levels of the building, and forms automatically a separate schedule for each floor. It becomes, in fact, three-dimensional and gives far a clearer idea of the necessary organisation as a whole.

While considering American practice we have been particularly struck by the difference in the amount of detail shown upon the working drawings in America and similar drawings common in England, more particularly for certain classes of work.

It is, of course, realised that the detailed bill of quantities is unknown in America, and we think that it is probably both more accurate and quicker to price on the English system, but there is much evidence to show that this leads to a great deal more cutting away and making good. A pipe chase may, in fact, be fully measured in the bill, but if it is not shown on the drawings the possibility of its being built as the work proceeds and not cut away after, is very small. Instances have been quoted of large blocks being built from poorly detailed one-eighth inch scale plans, supplemented by half-inch details of no more than, perhaps, the entrance hall and façade immediately above, together with uncorrelated specialist contractors' drawings of other parts. Many cases were quoted of quite extraordinary changes after commencement of work leading to pulling out, and gross waste. The waste so ensuing is not limited to the actual net cost of alteration, for the general production rate must fall—no man will work well if he is surrounded with evidence of carelessness and thoughtlessness on the part of the executive. Figures in extreme cases of this sort, where cutting away, making good and alterations are said to have amounted to 15 per cent of the total, have been mentioned, and figures of half this amount are common. Every penny spent on such work is entirely wasted, and it is certain that great economies could be made here if more time and thought were expended before the work was started. We are satisfied that more complete plans and regular conferences between those responsible for each section of the work, coupled with an agreement by all parties not to allow alterations, will produce economies of at least equal importance to those likely to arise from the institution of a Time and Progress Schedule.

Proprietary Brands

It is felt that further consideration is urgently needed in connection with proprietary materials. In certain classes of goods there appears to be a large variety of proprietary materials marketed, in which there is but little relation between cost of production and sale price. The trade seems to approximate very closely to the patent medicine business. Small quantities of well-known chemicals, bulked by suitable extenders, are sold for many times their cost. The sales literature accompanying these materials is rarely, if ever, based on the work of independent research authorities, and even if they are not directly harmful they constitute an unnecessary charge upon the industry. Their very existence suggests that there is a lack of scientific knowledge of the properties of building materials among those who specify them, just as there is a lack of knowledge of pharmacology among those who buy patent medicines. It is inconceivable that business of this type could be carried on with success in, say, the chemical or engineering industries, where both buyer and seller have a comparable technical education.

The problem, however, extends much further than this, and is concerned really with the whole question of branded goods. It is a natural development that a firm which has spent some time and trouble in building up a reputation for quality, will seek to recover this by encouraging the buyer to specify his material by brand name, and to pay an increased price for it. Actually, however, it may mean the imposition of an additional price, which is not really justified by the extra quality of the goods or the service given with the goods. A keen buyer—and many of the successful smaller builders understand this part of their business very well—can often buy unbranded goods of quality at least

equal to that of similar lines of branded goods, at a completely different order of price. The proprietors of the brands are, in a sense, justified, as they have often done much to popularise the material and build up the market, and may have spent very considerable sums upon establishing their own goodwill, but it does not alter the fact that the extra cost is to some extent an unremunerative charge upon building. The difficulty will tend to decrease with the regular introduction and extended use of standards of quality, provided always that these are real standards of quality and not solely standards of minimum quality. There is, however, an increasing tendency on the part of architects to specify by brand and not to follow the old (and admittedly not too well expressed) specification terms of quality. This limits the builder in his choice of material and reduces his bargaining power. There appears to be no doubt that a competent builder, by reason of his experience, can buy to better advantage than the ordinary architect, who cannot be a specialist in purchasing, and this limitation of the functions of the builder, and to some extent also of his responsibilities, cannot be in the interests of the building owner, and is, moreover, bitterly resented by the better type of builder. Even in the case of the speculative builder something of the same sort occurs. A case has been quoted where an architect, in approving certain specifications, reported to his client that the sum allowed by a speculative builder was totally inadequate for certain goods. An addition was agreed, but the goods fitted and finally passed were, in fact, those originally intended by the builder. The builder had spent many years in organising his purchasing department and had opportunities that the architect could never have had.

Architects' Liability

Against this must be set the present position of the architect with regard to liability. It appears that his liability for the failure of materials and construction specified is unlimited both in time or money. If he specifies a well-known brand of proprietary building material and there is an inexplicable failure it would be hard to take a case against him for negligence, and if such cases were started he would almost certainly be assisted by the proprietors of the material. If, however, he decided to save his client's purse and in fact utilised the same materials bought in the open market, in the event of a similar failure there is a *prima facie* case against him because he took an unusual course of action. He must prove unassisted that his action was not negligent—no mean feat in a case which would be dependent almost wholly on the services of the technical witness. This fear of the possibility of claims for negligence is a very real factor militating against the adoption of new systems and materials.

The nature and content of most proprietary goods are not disclosed, and it would appear that there is no legal reason why a firm should continue to sell the same mixture under the same name, nor is there any reason why a material should not be described by a name which has long been used loosely for a different class of goods. There are several cases of this in the plaster trade, where a great variety of products have been sold at various times under a name at one time limited to a particular type of product. Such proceedings strike at the whole basis of the value of the branding system.

An important case has occurred where a builder sought to obtain satisfaction for a failure in the use of a proprietary paint. In this the builder had purchased for many years a proprietary paint which he had used successfully in certain ways for certain purposes. It appears that on a large contract a failure had occurred and that on investigation it was discovered that an alteration in the composition of the proprietary paint in question had been made by the manufacturers, and that an addition of linseed oil, which had always been successfully made by the builder to the original type, was likely to cause trouble with the new type, although sold under the same name. The result of the case established that in certain circumstances the composition of proprietary materials can be changed with impunity. This, of course, cuts away much of the value of branded goods. There is now an unanswerable case for requiring disclosure of the composition of such materials as paint, plaster, waterproofer, wood-preserved, and similar goods which cannot be judged by sight. The hardship of this is not really as great as it may seem: thus the proposed B S S for plasters, for instance, requires the makers to disclose in which of 4 or 5 categories the plaster supplied is included, with a view to preventing mistakes in gauging on the site, and thus does not seem likely to cause any trouble. So far as competition is concerned it is certain that most manufacturers know a great deal about the composition of all their competitors' brands and that this practice would not tend to disclose trade secrets. Again, if the price of the article bears any reasonable relationship to the cost of production there is no risk whatever of the builder going to the trouble of commencing manufacture.

It seems clear that the inclusion of brand names for materials which are also available on the open market under generic terms, as P C items in bills of quantity, may not form the safeguard which it is sometimes thought to be, and that it may well lead to increased costs.

The present unlimited liability of the architect should also be more clearly defined, and some limits placed upon it. It is not obvious how this can best be arranged, as clearly some liability is absolutely necessary. There should, however, be no liability when he can show that the material or system of construction used is one commonly employed with success, and that there have been no cases of failure reported in the publications of the B R S, or warnings issued as to the practical limits for the use of the material or system. In the case of new materials there should be no liability where these have been fully tested by the particular section of D S I R concerned, so long as they are used under similar conditions to those obtaining in the tests, and evidence of having obtained the opinion of the Government research station concerned should be an adequate reply to a claim for negligence.

Summary of Openings for Cost Reduction

In addition to the specific points considered in this section, numerous suggestions for possible methods of reducing costs have been mentioned in other parts of this report, the more important are therefore summarised below. We are confident that substantial savings can be made in the aggregate, although each in itself will necessarily be small.

The importance of bulk buying on long term contract has been dealt with in several sections, more particularly in connection with the brick industry. This will remain the principal bargaining weapon of the building industry when dealing with producers of building materials, and has hitherto never been exploited to anything like the full extent possible.

Labour costs have been dealt with under that heading. It should be noted that we do not advocate any form of reduction in wages, in fact evidence from the more prosperous industries can be adduced to show that the paying of high rates in itself can lead to economies. We feel, however, that efficiency in the use of labour has scarcely been attacked so far in building.

Special systems of construction have not been dealt with in detail, though mention has been made, for instance, of the Mopin system. It is impossible to obtain sufficient evidence to show the economies likely to arise by its adoption in England, but in so far as it increases the proportion of work under factory conditions at the expense of site work, it is of considerable potential value, and is an important illustration of this general method of reducing costs.

Some comment has been made under the heading of legislation as to the need for more rapid revision of the existing regulations concerning the details of building, and as to the need for an authorising body to consider claims for new systems of construction, and to enable experimental buildings to be erected.

The need for an enormous intensification of research, and for a statistical survey, has been outlined in the section dealing with this subject, as also has the need for an increase in the number of entrants to executive positions having a good scientific education.

The question of possible economies which might be obtained in the financing of building schemes has been dealt with under the heading of Costs and Finance.¹ The rate of interest at which money can be borrowed, the period of amortisation, and the type of capital structure adopted, must materially affect the rents at which working-class housing can be let, and the incidence of rates and the possibility of exempting working-class housing has also been dealt with.

Throughout the report, the importance of competent management has been stressed, not only in the designing and during the construction of housing, but also in its maintenance. Nowhere is the importance of skilled and specialist personnel better illustrated than in the purchase of land.

The problem of the cost of demolition has also been mentioned in connection with proposals for a licensed life for buildings.

In particular it must be emphasised that the problem of reducing the cost of working-class housing is not an isolated one, and cannot be dealt with by itself, but is bound up integrally with the problem of a rationally organised building industry.

The full value of each and every one of these suggestions can only be obtained if an organisation is set up along the lines proposed with a view to collating and publishing information on cost reduction. It is useless for an isolated architect or builder to devise a better and more economical way of carrying out any operation if there is no means of spreading the information accurately and rapidly. The existing research organisations scarcely touch the problem of costs at all, and we regard it as absolutely essential that such a body should gather together all the information available and arrange for its publication.

¹ See pages 51-54 and 72-73.

The reduction in the cost of building working-class housing since the War has been primarily due to reduction in the cost of labour and materials—the latter during the last few years mainly on account of intense competition resulting from the depression. While, in the case of the larger building, materials manufacturers, substantial technical economies and improved efficiency in production have been achieved, we are of the opinion that these could be carried further and extended, both to cover a greater proportion of the total output of each material and to cover many of the less important materials. In the case of the building industry itself, the reduction of costs through technical economies and improved efficiency has hardly yet been touched, and we are convinced that results comparable with those obtained in other industries could be achieved along the lines indicated.

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