A MESSAGE FROM CLERKENWELL

Even before the bombing, the squares of Clerkenwell had, at least for one observer, an air at once gallant and nostalgic. Scarcely a hundred years old, they were a surprising survival of the world of seventy years before, the world of the Woods, the Adams and Leverton. Even in their trim brick facades they were faithful to the precedent of Bloomsbury. Were they a conscious attempt to recapture the past? Perhaps it is safer to see in them a last brave attempt, in the Victorian wilderness, to serve human needs with honesty and dignity, to be sincere and logical. They are a stirling proof of the hard-dying persistence of the English tradition of civic planning. The Clerkenwell squares should reassure those whose mission it is to replace and regenerate our modern towns . . . whose work, if it also is to serve human needs with honesty and dignity, must involve the use of the most efficient materials . . . amongst which will certainly be those of Celotex Limited.

Alphabetical Index to Advertisers

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Educational Legal Notices, Miscellaneous, Property and Land Sales—*see* pages xxxii and xxxiv.

Shapes are constantly changing

Simple things, like ploughs and pitchforks, change slowly. With the complicated things that enter into modern living—vacuum cleaners, wireless sets, cameras and telephones for instance—the change is often surprisingly rapid. Go to a museum and look at a sewing machine of 1880 or a gramophone of 1905!

There is food for thought here for manufacturers who normally make any mass-produced consumer article. Shapes will change radically after the war. New materials and processes, including new developments in plastics, will call for a new outlook on design. Bakelite Limited are endeavouring now to visualise some of the shapes of tomorrow. The views and advice of their Industrial Design Department are at the disposal of any manufacturer who thinks that plastics may play some part in the re-styling of his products.

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• • •

Time is the essence of the building contract. To Wimpeys time is not merely the fixed date for completion, but time represented by man-hours in many skilled trades, by planning whereby one operation is scheduled to begin at the right moment and to end as precisely, by the movement of materials from depot to site. Time in building is money — big money. Time saved is money saved but it means also better building, for both men and materials are best utilised by planned organisation.

In the Wimpey organisation, building starts with intelligent anticipation of everything in the complete job — putting all the skill and brains into the thinking before the building operations actually begin. Men and materials, methods and machinery, each of these four important factors is picked with scrupulous care. Wherever science can help in the laboratory, in research, in organisation, it is utilised to the full.

Sixty years of steady growth have taken Wimpeys to the front rank of a great industry.

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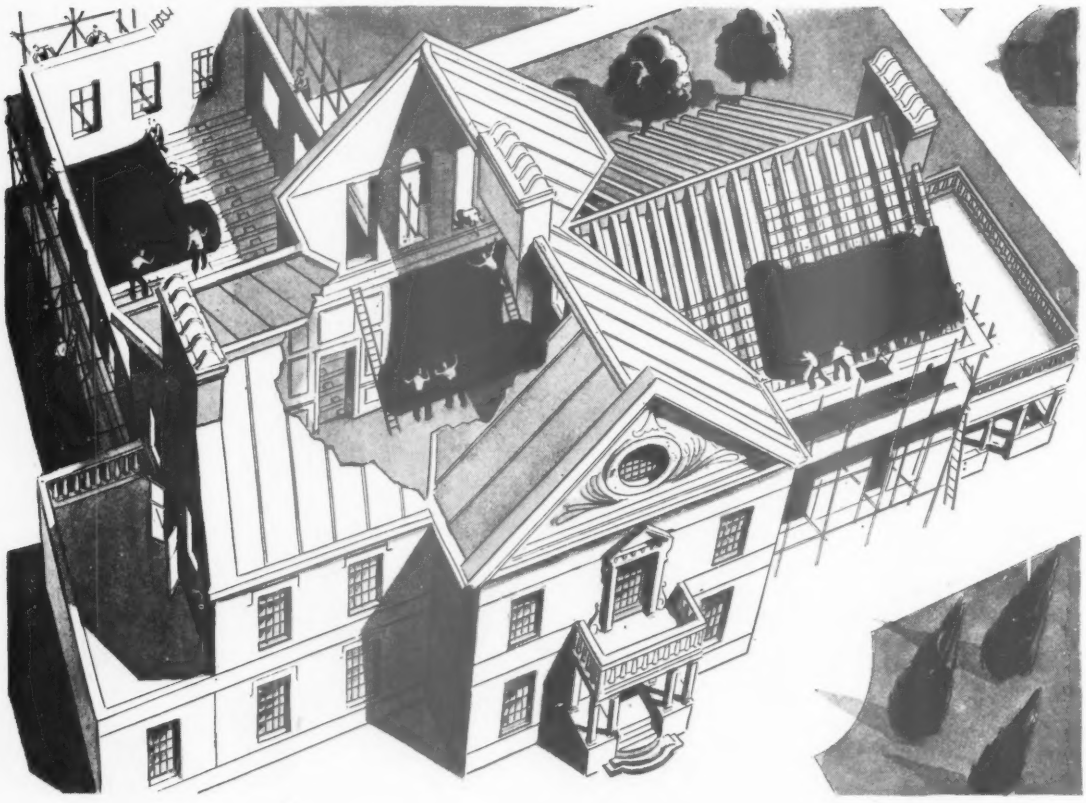
BUILDING CONTRACTORS SINCE 1880



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Sisalkraft is not an emulsion impregnated sheet of brown paper. It is an unusually strong material (practically untearable), a fusion of pure bitumen and two sheets of extra-tough Kraft paper reinforced with crossed Sisal fibres ; that is why Sisalkraft is consistently used by Government Departments, Municipal Authorities, and Public Works Contractors . . . and why Sisalkraft Standard Grade for post-war use will play such an important part in future reconstruction plans.

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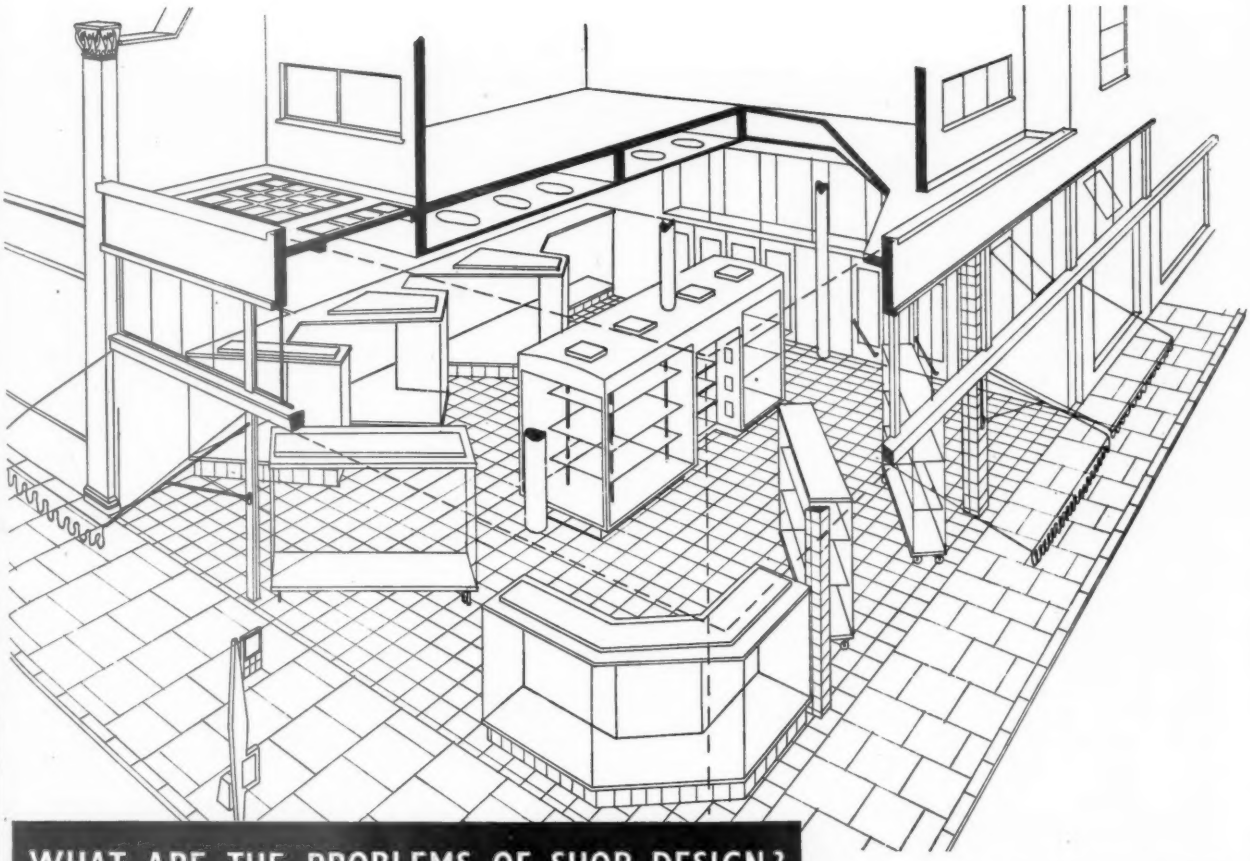
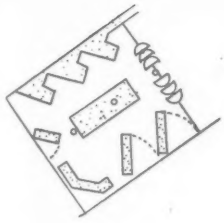


WHAT ARE THE PROBLEMS OF SHOP DESIGN?



These and other questions are being studied now by the SHOP SURVEY DIVISION of Harris & Sheldon Ltd. in connection with post-war problems of rebuilding old shops and making new ones. The Shop Survey Division was formed to collect opinions, facts and views on shop planning from shop owners, managers, stock-controllers, display men, and all people connected with the business of retail selling: also to study the tradition, history and trend of shop design; and is at the Architect's service.

Take, for example, the questions that arise from an angle site:

1 CLASS OF TRADE.
What type of clientele is to be attracted. Proportions of site to be given to display and to selling. Type of display: exclusive or massed.

2 EFFECT OF ORIENTATION.
Maximum use of daylight, aided by roof lights and clerestory.
Equitable distribution of space between windows and ceiling.
Depth of open display. Type of sun blinds dependent on local height regulations. Where should supports for sunblinds be fixed on open front.

3 ENTRANCE TO SHOP.
Position of entrance doors in relation to frontage. Size, type, number and grouping of doors. Draught exclusion. Special treatment of doors for air conditioned premises.

4 TREATMENT OF WINDOWS.
Dimensions dependent on class and type of goods to be sold.
Lighting, ventilation and weatherproofing.

5 TREATMENT OF SHOWCASES.
Type, lighting, waterproofing where exposed. Arrangement (continuous or island). Constructional materials.

6 OPEN DISPLAY.
Closing at night (movable showcases).
Burglary protection.
Gangway widths.

7 INTERIOR PLANNING.
Width of gangways to ensure adequate customer flow. Type, and most practical position for selling cases. Illumination.

PUBLISHED BY THE SHOP SURVEY DIVISION OF **HARRIS & SHELDON LIMITED**

MAKERS OF SHOPS

London Showrooms: 27, Berkeley Square, W.1. Telephone: Mayfair 2017. Works & Head Office: Stafford Street, Birmingham, 4. Telephone: Central 7101. Glasgow Office: 94, Miller Street. Manchester Office: Fernleaf Street, Moss Side. Loughborough Office: Woodgate.

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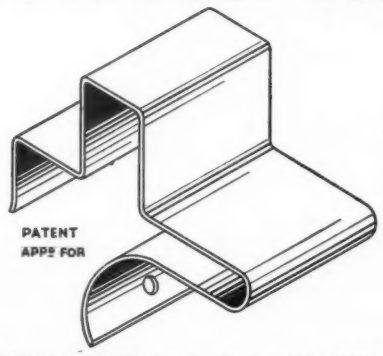
The HADLEY CLIP



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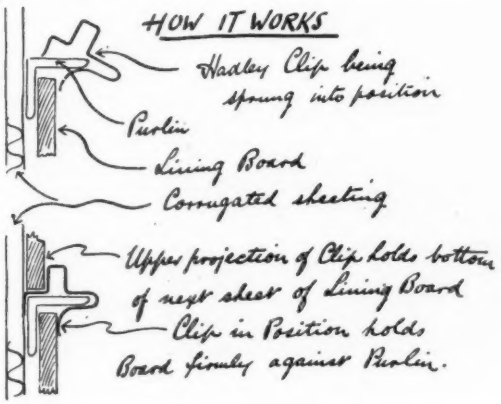

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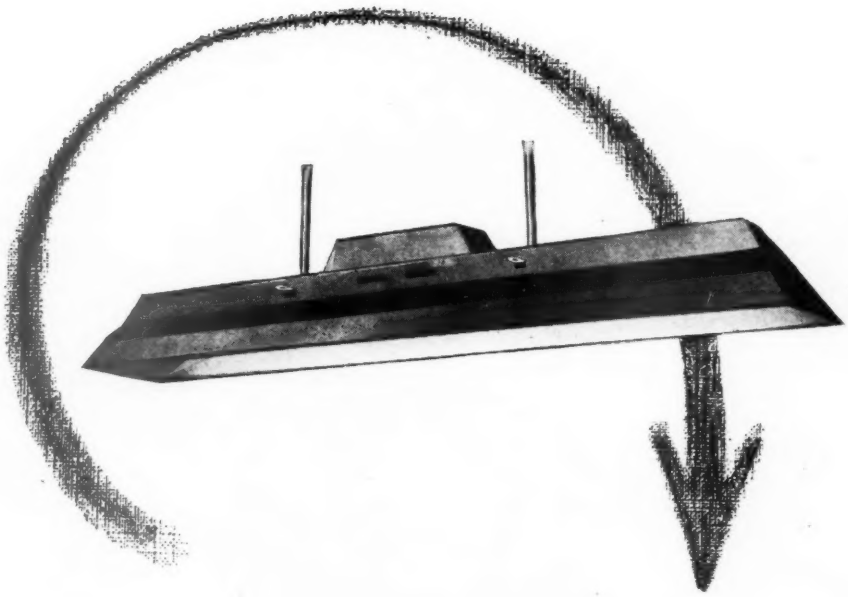

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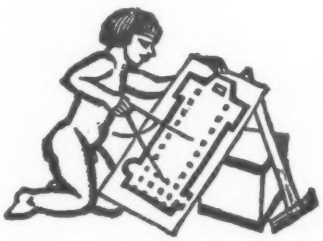
In common with every other periodical this JOURNAL *is rationed to a small part of its peacetime needs of paper. Thus a balance has to be struck between circulation and number of pages. We regret that unless a reader is a subscriber we cannot guarantee that he will get a copy of the* JOURNAL. *Newsagents now cannot supply the* JOURNAL *except to a "firm order." Subscription rates: by post in the U.K. or abroad, £1 15s. 0d. per annum. Single copies, 9d.; post free, 11d. Special numbers are included in subscription; single copies, 1s. 6d.; post free, 1s. 9d. Back numbers more than 12 months old (when available), double price. Volumes can be bound complete with index, in cloth cases, for 15s. each; carriage 1s. extra. Goods advertised in the* JOURNAL, *and made of raw materials now in short supply, are not necessarily available for export.*



DIARY FOR FEBRUARY MARCH AND APRIL

Titles of exhibitions, lectures and papers are printed in italics. In the case of papers and lectures the authors' names come first. Sponsors are represented by their initials as given in the glossary of abbreviations on the front cover.

BEDFORD. *Octavia Hill Exhibition.* At the High School. (Sponsor, HC) FEB. 21-28

DERBY. *Homes to Live In Exhibition.* At the School Museum. (Sponsor, BIAE) FEB.-APRIL

LONDON. *Colour in the Home.* Exhibition at the Royal Academy, Piccadilly, W. There are units representing dining, sitting, nursery and bedrooms, colour in everyday ware, and some building materials such as paints. There are also suggestions for the interior decoration of civil aircraft. (Sponsor, British Colour Council.) FEB. 10-26

County of London Plan. Light Touring Exhibition, prepared in collaboration with LCC by Ernö Goldfinger and Ursula Blackwell. At 13, Suffolk Street, S.W.1. FEB. 10-12

Yugoslav Exhibition. At the Royal Academy, Piccadilly, W. Sponsored by the Royal Yugoslav Embassy and the British Council. The purpose of the exhibition is to make the style and way of living of the Yugoslav people better known to their British allies. Exhibits include costumes from areas in Yugoslavia where there have recently been pitched battles, and frescoes copied from the walls of Yugoslav monasteries and churches, since destroyed by the Germans. Some of the frescoes were discovered only comparatively recently. For centuries they had lain hidden behind coatings of plaster with which "restorers" of Yugoslav churches had covered them. A room is devoted to textiles which include goats' hair embroidery and carpets, and a small section to painted beehive fronts to which Yugoslavs (the inventors of the modern sectional type of hive) give as much attention as is paid in this country to the painting of inn signs. American museums have lent sculpture, paintings, costumes and embroideries. Mondays to Fridays, 10 a.m. to 5 p.m., Saturdays, 2 p.m. to 5 p.m. FEB. 10-13

RIBA Exhibition of Paintings and Etchings by William Walcot. At the RIBA, 66, Portland Place. Walcot died in May last. His outstanding achievement, which is fully represented in the exhibition, was the production of expert gouache and etched restorations of the Architecture of Greece, Rome and Egypt. Walcot, in his later years, concentrated his interest largely on town planning as applied to London. Much of his work in this field was shown in the recent exhibitions of the County of London and is reproduced in the Report on the County Plan. The RIBA exhibition includes a scheme for short-circuiting the Thames to facilitate the planning of the central area. The exhibition also includes a considerable number of other water colours, pencil drawings and etchings of recent years. FEB. 10-19

Swedish Factory-Made Timber Houses. Exhibition of photographs and drawings lent by the Swedish Timber House Export Association of Stockholm. At the Building Centre, Maddox Street, W.1. 10 a.m. to 4 p.m. (Saturdays 1 p.m.) FEB. 10-26.

Exhibition of drawings of Landscape, Seascape, Industry and War subjects. By E. B. Musman. At the AA, 34-36, Bedford Square, London, W.C.1. Mr. Musman's drawings are in water colour, pastel, pen and wash, and pencil. Most of them have been done since September, 1939, as a relaxation from wartime duties. Weekdays 10 a.m. to 6 p.m., Saturdays until 2 p.m. FEB. 10-26

Living in the Country Exhibition. At YMCA, Great Russell Street, W.C.1. (Sponsor, HC) FEB. 19-26

Etchings, Engravings and Drawings Exhibition. By Fellows and Associates of the Royal Society of Painter-Etchers and Engravers. At R.W.S. Galleries, 10 a.m. to 5 p.m. Saturdays 10 a.m. to 1 p.m. FEB. 10-MAR. 9

H. J. Spiwak. *Temporary and Demountable Housing for Reconstruction.* At Housing Centre, 13, Suffolk Street, S.W.1. 12.45 p.m. FEB. 22

Film Evening. Films selected by Paul Rotha, who will give an informal talk. At 34-36, Bedford Square, W.C.1. 6 p.m. (Sponsor AA). MAR. 14

P. Schiller. *An Analysis of the Load on a Modern Electricity Supply System.* At Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. 5 p.m. MAR. 16

W. N. C. Clinch and F. Lynn. *The Design and Performance of Domestic Electric Appliances.* At the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. 5 p.m. MAY 4

LUTON. *Rebuilding Britain Exhibition.* At the Museum. (Sponsor, BIAE) FEB. 26-MAR. 11

RISCA, MON. *Living in the Country Exhibition.* (Sponsor, HC) FEB. 10-29

SHEFFIELD. *Your Inheritance Exhibition.* (Sponsor, HC) FEB. 26-MAR. 12

NEWS

THURSDAY, FEBRUARY 10, 1944
No. 2559. VOL. 99

Though no feature in the JOURNAL *is without value for someone, there are often good reasons why certain news calls for special emphasis. The* JOURNAL'S *starring system is designed to give this emphasis, but without prejudice to the unstarred items which are often no less important.*

★ *means spare a second for this it will probably be worth it.*

★★ *means important news, for reasons which may or may not be obvious.*

Any feature marked with more than two stars is very big building news indeed.

Mr. Henry Willink, Minister of Health, has announced a HIGHER COST LIMIT FOR HOUSE REPAIRS and the completion of partly finished houses.

Opening a housing exhibition at Manchester, Mr. Willink said: At present local authorities can spend up to £250 per house, or £200 per dwelling, in the case of flats or tenements. The limit is now to be raised to £500 for each house, or £400 for each dwelling. Private owners wishing to spend more than £100 on repair work in any year will still have to apply for a building licence, but local authorities will assist owners to get labour and materials for essential work up to £500.

If results justify it, BUILDERS WILL ADAPT THEIR ORGANISATIONS to carry out efficiently the erection of factory-produced sections.

This is stated in the annual report of NFBTE which points out that building employers will not hesitate to make use of new processes and methods after investigating their advantages and disadvantages. With regard to long-term and short-term housing the report says: The labour force available after completion of demobilization and with new trainees may well become adequate for the long-term programme. The real difficulty is whether the tempo of demobilization will allow a sufficient supply of labour to enable fulfilment of the short-term programme.

from AN ARCHITECT'S *Commonplace Book*

DEATH IN A LIVING-ROOM. [*From* Here Lies, *by Dorothy Parker.*] If the Bains had striven for years, they could have been no more successful in making their living-room into a small but admirably complete museum of objects suggesting strain, discomfort or the tomb. . . . It was a high-ceilinged room with heavy dark old woodwork that brought long and unavoidable thoughts of silver handles and weaving worms. The paper was the colour of stale mustard. . . . The furniture was dark and cumbersome and subject to painful creakings—sudden sharp creaks that seemed to be wrung from its brave silence only when it could hear no more. A close earthy smell came from its dulled tapestry cushions. . . . Between the windows hung a painting in oil of two lost sheep, huddled hopelessly together in the midst of a wild blizzard. . . . Mrs. Bain was wont to observe of it that the frame was worth she didn't know how much.

★★★

Housing sites are to be prepared in the late spring and early summer when plant and machinery become available from airfield construction, announced LORD PORTAL IN THE HOUSE OF LORDS on Tuesday.

All roads and sewers and electricity, water and gas services sufficient for the maximum number of houses that can be built during the first two years after the war are to be provided. Sites are to be chosen by Local Authorities and MOH who will consult MOA and MOTCP. Sites will be grouped: those over five acres will be undertaken by larger contractors, those under five acres by smaller contractors. The demonstration houses at Northolt have been approved by MOH and a panel of architects nominated by RIBA—they are not meant to illustrate fittings but to give comparative costs in methods of construction, alternative materials being used where recommended by the Burt Committee. Houses will be 850 super feet, except for two pairs to be built to plans approved by the Dudley Committee which will be 900 super feet. The types to be built will be: two pairs of brick houses, one with a broader frontage; two further pairs of brick of the type accepted by the Dudley Committee, one pair of urban, the other agricultural; two pairs of foamed slag, one pair in pre-cast block and the other in situ; one pair steel-framed houses with brick panels; three types of steel house, later a terrace of four brick houses will be built while a prototype prefabricated house will be ready by the end of April. To avoid temporary houses becoming permanent the Government has decided that if approved they shall be publicly owned and licensed for a limited period

The Suffolk coastal village of KESSINGLAND PLANS A SEASIDE HOLIDAY CAMP of forty-eight acres.

Post-war plans also include, in addition to the holiday camp, a beach reservation for eighty local fishermen, 24 acres of land for tent campers, and the provision of a fair ground.

Bermondsey Borough Council wants to make LONDONERS RIVER CONSCIOUS.

The Council, therefore, is asking the LCC to make provision in the County of London Plan for a River Thames passenger transport service. It also emphasizes the importance of public access to the river frontage without interference with dock work, the provision of accommodation for boating clubs, and states that "every effort should be made to make London's citizens river conscious."

Acton Council is TO ASK FOR WIDER POWERS to requisition vacant houses and flats.

Councillor J. A. Sparks, chairman of the Housing Committee, told the Council that Mr. Morrison's order giving powers to requisition furnished houses and flats after the owner had been given a chance to let them, had not released one for 220 applicants for accommodation. His committee asked the Council to apply for powers to acquire all vacant property before it was re-let. Councillor J. F. B. Miller, opposing the proposal, said that it was not quite naked Socialism, but it was Socialism in its underwear. One of the Town Council officials had described the order as "a flop." This was not true all over the country. Acton's problem is an exceptional one because there are more factories and fewer houses than in any other town. Councillor T. W. Newson said house agents discriminated against working-class people when letting houses. The Council decided to ask for wider requisitioning powers, but not to ask to acquire all vacant property before it is re-let.

Within the next few months the Imperial War Graves Commission hopes to begin the creation of SEVENTEEN WAR CEMETERIES IN NORTH AFRICA.

Mr. J. Hubert Worthington, F.R.I.B.A., principal architect of the Imperial War Graves Commission for North Africa, has made a tour of inspection extending from Cairo to Algiers. According to the annual report of the Commission, he recommends the creation of seven cemeteries between Alexandria and Tripoli and of ten in Tunisia and Algeria. Approval has been given to the recommendations and the Imperial War Graves Commission hopes that construction of a permanent nature will begin within the next few months.

Rickmansworth Urban District Council has SENT A PROTEST TO MOH against the LCC Oxhey housing scheme.

The protest is made against the LCC plan to acquire Oxhey Place estate, near Watford, as a site for post-war housing for bombed-out Londoners. The council contends that Oxhey is the only stretch of open country left between Watford and London. It ought therefore, in the opinion of the Council, to form part of the green belt.

There is a very clear case for EXTENDING THE TRUNK ROAD SYSTEM, said Mr. Noel Baker, Minister of War Transport.

It was therefore proposed, said Mr. Noel Baker in the House of Commons, to frame legislation substantially to increase the present mileage of trunk roads. He said: Consideration has been given to proposals for constructing a new system of motorways to relieve pressure on existing main roads. There is a strong case for reserving exclusively for motor traffic some of the by-pass and other roads.

Parliamentary approval is to be sought for the REGISTRATION OF BUILDERS upon a qualitative basis.

After investigating the registration question a committee—its report has been approved by NFBTE—recommends the promotion of a statutory scheme similar to the Architects' Registration Act. It would be a register of undertakings trading as builders, and not of persons. Only those admitted to the register would be permitted after Parliamentary approval to use the description Registered Builders.

The death is announced of H. KEMPTON DYSON at Kensington at the age of 63.

He had much to do with the founding of the Concrete Institute—he was its first secretary (1908 to 1917)—and later with its change to the Institution of Structural Engineers. From 1904 to 1908 he edited the *Builders' Journal*, now the *Architects' Journal*, and from 1914 to 1918 was consulting engineer for the strengthening of the support to the Dome of St. Paul's.

Workers in the building trade are demanding the setting up of immediate legislation for the COMPULSORY ACQUISITION OF LAND FOR HOUSING.

The demand is made in a resolution of the Building Trade Group Committee of the London and Home Counties Area of the Transport and General Workers' Union. This, they say, should be a preliminary step to a Government declaration of a minimum housing programme and an instruction to local authorities to prepare definite plans. Stocks of materials for post-war homes should be built up now.

At the William Walcot Exhibition

The above water colour, *Fireguards in St. Paul's Cathedral*, is among the many examples of William Walcot's work now on exhibition at the RIBA. Executed in 1940, it is among the last of his drawings, for he died on May 21, 1943. Painter, etcher, architect, and town-planner, William Walcot, an Honorary Fellow of the RIBA, was born at Qdessa in 1874. He was the elder son of Frank Walcot, an English merchant, who had married the daughter of a Russian landowner. His childhood was interesting, if disturbed, for his early years in Russia were broken by visits to France, Spain and other European countries, and to South America. He was educated at Amiens and Neuilly, Paris and later at the Imperial Academy of Arts, St. Petersburg. Then followed a period at the Ecole des Beaux Arts and the Atelier Redon, Paris. He afterwards returned to St. Petersburg to practise architecture for several years. During this period, being friendly with one of the princely families of Russia, he gained access to the Russian Court, which may explain his love of the ceremonious, the spectacular, and the grandiose that characterizes so much of his work. In the early years of this century Walcot more or less settled in London where he began to develop his extraordinary skill in draughtsmanship applied especially to architectural compositions. Indeed, the painting, drawing and etching of architectural subjects formed his real vocation, rather than the normal practice of architecture. Walcot was also a scholar and made a special study of ancient history and classical mythology. This resulted in the imaginative presentations of ancient times, Greek, Roman, and Egyptian, which became the distinctive phase of his work. Typical of this phase are his illustrations for the *de luxe* Paris edition of Flaubert's *Salambo*, and the famous Temple Series, a dozen or so water colours in tempera technique mainly of Etruscan and archaic Greek buildings, which are the focus of the RIBA exhibition. For many years, he carried out perspectives of other men's buildings, which have been so regularly hung each year in the architectural room of the Royal Academy. During the last ten years he concentrated largely on town-planning, and executed a number of drawings for the Report of the County of London Plan. Most architects will remember, too, his bold scheme, completed in 1932, for re-planning the central area of London, with its idea for short-circuiting the main bend of the Thames from Battersea to West of Greenwich to provide a new industrial waterway running through South Bermondsey, Camberwell and Lambeth, and a great ceremonial and traffic artery over the old filled-in course of the river. A drawing of this scheme is also shown at the RIBA. The exhibition, on view in the RIBA Florence Memorial Hall, was opened by Mr. Percy Thomas, President of the RIBA, on January 25, when he expressed the hope that a means would be found of keeping the collection together. The exhibition closes on February 19.

Because we are not good at amateur theatricals and there is not much more to do, we found WELWYN GARDEN CITY EXTREMELY DULL, says Mr. Lewis Silkin, M.P.
Mr. Silkin, chairman of the LCC Planning Committee, was speaking at a Labour Party Conference at Ilford. He attacked the setting up of satellite towns, and said: My personal opinion is that satellite towns are frightfully dull places, and most people who favour them in the abstract would not be prepared to go and live in them. I know, he added, the Labour Party stands for large-scale decentralisation of population, but I do not think it can be done.

MOH warns local authorities that DRY ROT IS GREATLY ON THE INCREASE in the woodwork of houses.
This, says MOH in a memorandum, is particularly the case where houses have remained unoccupied for a long period or have been damaged in air raids. It will be helpful, says the Ministry, if local authorities carrying out surveys or executing repairs will inform property owners if dry rot is found.

★

Five pairs of semi-detached DEMONSTRATION HOUSES AT NORTHOLT were begun last week by MOW.
Work will also soon begin on twelve semi-detached steel houses, a similar number of concrete houses, aud a small estate of wooden houses, all on sites within twenty miles of London. When completed MOW will invite local authorities to inspect them, so that they can form ideas for their own housing programmes under the short-term scheme to build 200,000 houses in two years.

A stained glass window at Kirk Bramwith, near Doncaster, in memory of men who fell in North Africa, is BRITAIN'S FIRST PUBLIC WAR MEMORIAL.
The window in the village church is dedicated in gratitude for the North African victory in May, 1943, and in memory of the men of the United Nations who gave their lives in the liberation of the African Continent.

After the war women in factories should be trained in the science of PREFABRICATING TIMBER HOUSES, said Mr. Alfred C. Bossom, M.P.
Armaments factories, he continued, could be turned over to mass-produced houses, intended only for temporary use. The regular building trade could, in the meantime, build permanent houses, of the kind traditional in Britain. Mr. Bossom was speaking at the opening of the exhibition of Swedish Factory-made Timber Houses. The exhibition was illustrated in the JOURNAL last week.

USA MISSION REPORT

THE Report of MOW's Mission, which visited the USA during September and November last year, was published last Saturday.* The Mission, it will be remembered,† consisted of Alfred Bossom, M.P., Sir George Burt, Chairman of the Building Research Board, Sir James West of MOW, and Frank Wolstencroft, Secretary of the Amalgamated Society of Woodworkers and Past President of the Trades Union Congress. Its object was to survey American practice in the design and construction of buildings with a view to securing in Great Britain in the post-war period: (*a*) increased speed and output; (*b*) reduced building cost; (*c*) improved standards of equipment and finish; (*d*) improved conditions for operatives. Extracts from the Report, which is some twenty pages long, appear on pages 121 to 123 of this issue, with the Summary of Recommendations. At the time the Mission departed we were rather sceptical about what could be done in the way of fact-finding by so small a group in the short space of the ten weeks the Mission was away, but it is clear that a great amount of work has, in fact, been accomplished. This is indicated by the evidence published in the Report, which is wide in scope, though very concise. As Lord Portal states in a Foreword, he decided to publish the Report without waiting for the detailed appendices, in order that all concerned with post-war building might, as soon as possible, consider and discuss it. These appendices, we understand, may be published at a later date. The statements of fact in the Report should be useful and make interesting reading, especially those concerned with materials and technique, serving as appetizers to the more detailed appendices to come. The recommendations, on the other hand, are disappointingly generalized and non-committal, being only fifty lines long and largely composed of advice for further study. They could surely have been prepared in an hour or two by one intelligent person with some knowledge of building, merely by culling contemporary American journals—perhaps even without doing that, and certainly without having to make a trans-atlantic journey. We are given too little practical account of the Mission's views resulting from its observations. So far as they go the recommendations are sound enough, notably those on the rationalization of building procedure and on the registration of architects and engineers. The call for greater research and for the dissemination of technical knowledge, too, is eminently sensible. That so much data was collected by the Mission in so short a time itself indicates the value of research, and leads to the hope that a regular exchange of American and British research workers may be arranged.

To sum up, useful knowledge has been gained, but more

* *Methods of Building in the USA* (HMSO, 4d.)
† See A. J., September 16, 1943, pp. 192-193.

definite, more detailed and more directly practical recommendations based on the findings are called for. Lord Portal says in the Foreword that he does not "overlook the fact that some of the matters referred to may prove to be controversial." He does not state in what way. If on technical grounds they can, and should, be settled immediately by scientific investigation. If they are controversial from the commercial and financial points of view, politics will eventually have to decide the issue—perhaps not very gently, for the post-war housing situation will, by all accounts, be a desperate one. Meanwhile, in the case of the recommendations of MOW's American Mission, as in too many others as well, the old method of prevarication still holds: Never commit yourself; committee yourself. It would, however, be unfair to carp too much. A useful job of factual recording has been done.

The Architects' Journal
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NOTES & TOPICS

USA REPORT RAISES A PROBLEM

A significant fact (significant only in a negative way) revealed in the Report of MOW's American Mission just published is to be found in paragraph 23: "It is generally admitted that the problem of providing satisfactory joints between external walling sheets has not been successfully solved in this country."

★

This is certainly regrettable, for a solution to this extraordinarily difficult problem is vitally important to future building; perhaps it is the biggest technical building riddle of the day, and one which is bothering every manufacturer of new walling materials. No one yet seems to have found a really satisfactory answer.

DR. STRADLING AND THE BRS

It is reported that Dr. R. E. Stradling, of the Building Research Station, is to become chief technical adviser to MOW, and that this appointment will require him to leave BRS. From the point of view of MOW the choice is admirable, and will increase the already general feeling that MOW knows how great its post-war responsibilities will be, and is making adequate preparations.

★

But members of the building industry and its professions will hear the news with a twinge of regret. To them BRS had by 1939 become something very special. It might have begun as a Government research establishment bringing the exact sciences to bear on the hit and miss medley of building materials and structure—an undertaking which the average member of the industry probably regarded with suspicion and dislike. But it had long been much more. Its disinterested helpfulness and absolute reliability during years when new materials and methods were introduced in dozens each year soon conquered distrust. And its published Abstracts and Questions and Answers both raised standards and provided a continuing course of adult education for the industry. By 1939 very few architects failed to read every issue of Questions and Answers.

★

Such a service will be needed after the war more than ever before, and the departure of Dr. Stradling does not mean that it will not be forthcoming. But the industry will, I think, hope that it will be provided under the same conditions of complete independence for BRS as existed before the war.

★

It is here a difficulty may arise. MOW's responsibilities will be such that it will be compelled to make a heavy demand on BRS at least during the first post-war years. And it is possible to imagine circumstances in which MOW might be worried to find that BRS was giving an answer to a non-official enquirer which called in question some method or item of policy officially advocated by MOW. There is nothing sinister about this possibility. Given the great differences between an organization charged only with telling the truth to all men and one with great administrative responsibilities it is almost bound to occur.

★

One therefore hopes that in the design of the proper post-war liaison between BRS and MOW it will be borne in mind that the great hold which BRS has on the industry's confidence would be instantly destroyed if it was even thought to have become an appendage of MOW.

A CONTRACT IN FORM

Architects and builders are not necessarily concerned with the letting of property that they have built, but it is of interest for them to know when a contract is a contract. A case, *Conqueror Property Co.* v. *Barnes Corporation*, decided recently is of general interest. In brief, the point at issue was whether a written agreement to let a flat made by one company with another which had the same directors and very largely the same shareholders was in fact effective in creating a standard rent under the Rent Acts.

★

The pre-war letting value of the flat was in the neighbourhood of £78 per annum. The rent fixed by the inter-company agreement was £250 per annum. The company in the position of tenant did not in fact occupy the flat. The Divisional Court held that there was no letting, that the written contract was not effective, and that the company had

been properly convicted of quoting an untrue standard rent when they gave the figure of £250 to a subsequent tenant who demanded it under the Rent Acts. There are those who boast that they can find a way around any Act of Parliament, but there are sometimes unexpected pitfalls on the route.

WILLIAM WALCOT

The number of architects in this country who can draw (as opposed to those who can sketch or illustrate) is surprisingly small. Presentation, as it is called, for exhibitions or for hooking clients, has become to-day almost the monopoly of those fashionable architectural beauty specialists who, with their cleverly chosen viewpoints, stormy skies and judicious use of Chinese white, can make a passably entertaining picture out of the dullest building. From every point of view this separation of architect and artist is as unfortunate as are (usually) the results. The perspective man tends to treat a building as a composition within a frame, while the architect is often as misled by skilful "presentation" as are his clients.

★

Of course, there are and have been exceptions. A list covering the last fifty years would probably include Lethaby, Rickards, A. E. Richardson, P. D. Hepworth and Raymond Macgrath—and surely at the head of them all, William Walcot, who died last year and some of whose work is now on view at the RIBA.

★

William Walcot, it is true, is not so well known for his buildings as for his drawings—one of his more recent works is a pleasant Georgian-style antique shop in St. James—but there was nothing pictorial or superficial about his treatment of architecture. He was a scholar and a builder as well as an artist, and his magnificent Piranesi-like restorations of ancient architecture which were the outstanding achievement of his life were, though to some they may now seem very much dated, as expert as they were exciting, while a Walcot-drawn building in the RA architecture room would make its fellows look as if they were made out of pink cardboard.

★

His technique was fascinating, completely personal and incredibly slick—that astonishing handling of textures, the occasional sensitive stroke with the ruling-pen, the sudden bright accents of pure colour. It was rumoured—and such practical tricks are always attributed to genius—that he mixed his colours with treacle, with gum or with Guinness, and the fifth year studio when would-be Walcots were at work, would smell like a kitchen.

ASTRAGAL

The Temple of Horus, a water colour by William Walcot, at the RIBA Exhibition. See Astragal's note above.

LETTERS

Noel Carrington
D. J. Wright, A.R.I.B.A.
Whitfield Lewis
Sam Bunton, L.R.I.B.A. (*Town Planning Adviser to Clydebank*).
M. W. Jones, L.R.I.B.A. (*Surveyor to the Dean and Chapter, Worcester Cathedral.*)
Ernst Fuchs
F. Leslie Wallis, (*President, NFBTE.*)

Professional Aloofness

SIR,—A common note struck in your columns of late is apprehension concerning the future of the architectural profession and the part it is going to play in the world. May I, as a layman interested in the general design of construction, offer some comments. In the first place, one has observed, for the last generation at least, the decline of standards of design in the bulk of building throughout this country. There has been recently a welcome improvement in individual buildings, but there have been so few in relation to the whole that their influence is as yet insignificant. Further, an architect is quoted in a recent issue as saying that the "power of the architect in co-ordinating the various specialists has often been lost." That is as good as saying that the designer is no longer in control. All this has been going on alongside a very widespread renewal of interest in architecture amongst the general public, that is more active than anything seen for at least a hundred years, growing year by year, and not confined to any one class. How does this latter phenomenon fit in with the fears of the architect for his own position and function in society?

It leads me to question the wisdom of architects maintaining an attitude of professional aloofness from the business of building. The claim that the architect's independence is necessary for the protection of his clients' interests seems based on an assumption that the builder is a rogue or a fool. If I want printing done I go to a printer who has the reputation for good design and

workmanship. The printer estimates for the job and if the firm is properly constituted, his typographer designs it for me. I do not require an independent overseer to find out whether he has cheated me. Admittedly, a building is more complicated. Nevertheless, it is only a matter of degree, and the firm which cared for its reputation would see that the workmanship was sound throughout. I fail to see why I should not commission building from a firm which submitted its own designs with its estimates, the designer being a qualified architect, a member of that firm, a partner, perhaps, whose job it was to prepare designs and see they were carried through. I do not see anything derogatory in such a profession. On the other hand I can see that an architect should gain by constant contact with other specialists and with those other aspects of building, finance, transport, labour and building technique, which are a necessary component of the industry. I do not suggest that that is the only place for architects, as obviously there would be scope for consultants and specialists but it is my belief that when people talk about integration in the building world, this is the kind of integration that is needed, namely a designer, or architect, in every building firm of any size.

From an outsider, this letter may well seem an impertinence. But, believe me, it is painful to see millions of buildings of all sorts run up without any regard to either appearance or fitness. It is no consolation to be told by architects that the profession was not responsible. It does not make sense. The public has some right to ask that essential work should be done, and if professional etiquette is too formidable a barrier, history suggests that someone else will be found to do it.

London. NOEL CARRINGTON

Flats at Clydebank

SIR,—Astragal's remarks in your issue for January 6 concerning the flats at Clydebank, must strike a sympathetic chord in many of our disillusioned young architects. But surely this question of the ultimate choice of the worst design is all so familiar that the time has come for insistence upon action and legislation of a more positive nature.

Any architect worth his salt can see how very much finer are the alternative designs submitted in this particular case, and it must be the duty of the architectural profession to see that the best designs are always carried out.

To this end we must see to it that the layman has more trust and confidence in the abilities of the qualified architect. The views of the medical man, for instance, are generally accepted, if not without question, at least with respect. It therefore seems fantastic that in these times we still cling to the archaic system whereby final decisions on questions of design are left to a local authority subcommittee composed generally of people who can have no pretensions towards architectural knowledge. One might as well set up a committee of architects to disprove the doctor's diagnosis.

The question of architectural control, or as some prefer to call it—guidance, is one which is of necessity fraught with difficulty. It must be realized that the man who pays the piper calls the tune. But if he offends his neighbour in the process then he is an offender against society. It is useless and even presumptuous to tell a man that he has no taste, and he will, quite rightly, resent any such apparent snobbery.

There are, however, certain canons of truth, beauty and behaviour which are unalterable, and until such time as we become more conscious of them through, for instance, the Council for Education in Appreciation of Physical Environment, they must be held in trust for the future generation.

We cannot agree, for example, with Dr. Joad who, in the excellent anthology *Britain and the Beast*, edited by Mr. Clough Williams-Ellis, while admitting in so many words that, concurrently with a growth of intellect, there has not been a parallel growth of æsthetic insight, says that the solution is in the hands of the people themselves through presumably a system of trial and error, and that the position must necessarily be worse before it is better.

In spite of the difficulties of an increasingly bureaucratic life, we suggest the compulsory employment by authorities of panels of architects and obligations to abide by their decisions. But let us strike while the iron is hot, when anything and everything is being planned from potato breakfasts to streamlined w.c.'s. Let us not fail our largely inarticulate school of young architects, nor cease striving towards our ideal of a true graciousness of living.

D. J. WRIGHT
Rochester. WHITFIELD LEWIS

SIR,—I read with interest Astragal's comments on the sketch design for the proposed houses at Clydebank and those actually related to the first two hundred under construction.

I hasten to assure him that—so far as Clydebank is concerned—there need be no apprehension that the worst design will be decided upon. For example, the drawings and designs which were illustrated in the *Hall of Housing* —denoted by the title "Planning for Standardization," two of which were illustrated in the JOURNAL (bottom of pages 5 and 12)—represent the actual types of homes which will be erected when we resume our activities under reasonably normal conditions of labour and material supply.

To secure the design effects illustrated, the structure of the houses will, to a very large degree, fall into the category of alternative methods. In this particular instance the intention is to develop on the structural cross-wall and in situ slab connection floor, ensuring that external walls and internal partitions are non-load bearing. The materials to be employed for those purposes would therefore obviously be light—slabs capable of handling by man power; and since the structure and plumbing would be permanent, it is obvious that the external walls and partitions could be removed after 30-40 years, thus permitting the next generation to plan their homes—as we demand the right to plan ours—but with the advantage of re-designing within a permanent framework; all obviously implying cheaper housing in their time than in ours.

In this connection there will surely be some revolutionary advancement in building materials during the next 30 years which can be related to those cross-wall or framed buildings; and at any rate the proposal prevents the possibilities of the re-creation of slumdom caused by buildings lasting for too long a period.

Astragal may well say—good enough. But why didn't you proceed to this form of construction now? The reply is, that houses are urgently required for 200 of the thousands of homeless families of Clydebank, and therefore neither the local authority nor the homeless would be well-disposed to put up with long delay which is apparently related to the examination of alternative methods of building. Se we have had to do the best possible in difficult circumstances, and feel that even then the results will not be too bad.

Glasgow. SAM BUNTON

Rural Houses

SIR,—I must take Mr. Bernard Lowe to task about his plans for rural workers' cottages. It is evident that two years sojourn in the country is not long enough. I have lived in an agricultural worker's cottage for 16 years and know some farm workers and their families pretty well.

The farm worker's bath night is Friday or Saturday—nothing will induce him to bathe more frequently—whether he is "thrashing" or muck carting. Threshing usually occupies him for one week out of 52. Is this a sufficient reason for putting the bathroom near the back door?

Ask the man's wife where she would have the bathroom. She will think of bathing the children and putting them straight into bed, of illness and having water handy, and somewhere to empty slops. In Mr. Lowe's cottage slop pails would have to be carried downstairs and through the house—a most insanitary arrangement and extremely inconvenient to the mother.

A living-room is surely a room to be lived in, and to expect the housewife to light a fire for the evening meal only is unreasonable and it is unlikely that she will do so. I submit that a good kitchen-living-room is the ideal, with the sink and working utensils in a separate utility room. It is unusual to find a carpet in the country, linoleum and rugs are the rule.

If a small parlour is provided, where the younger members of the family can receive their boy and girl friends, they will not be driven to the cinemas in the nearest town or to the adjacent hedge or barn to do their courting. Besides, the parents like to dress up occasionally and entertain their friends on a Sunday evening.

I agree with Mr. Lowe that country larders should be reasonably large, but tradesmen delivered groceries and meat at least once a week in normal times.

With regard to storage space for fuel, it has been my experience that the housewife buys 1 cwt. of coal at a time.

How the wind will whistle up that open covered way on a blustering March day. Mr. Lowe should try steering his bicycle up a narrow passage (standing on the left of his cycle of course) and try to open the left-handed, outward opening door of the cycle store on a windy, dark night.

There is much that is good in the plan, but I suggest that the planning does not really spring from real understanding of the life and mentality of the countryman.

Worcester. M. W. JONES

Pyramidal Structure

SIR,—Only the precise definition of technical terms will enable one expert to understand clearly the thoughts of another, and will prevent the misuse of such terms, which often leads to a deception of those "outside the profession."

The "pyramidal structure for town-planning by means of local units" is symptomatic for our time, only in regard to the kind of "loca units." Towns were always understood as consisting of parts or of units. Previous generations of town planners understood the city as a collection of streets, squares, buildings, vistas and architectural features or at best as an interrelation of different building units and various spatial elements having the human being subordinated to these aspects.

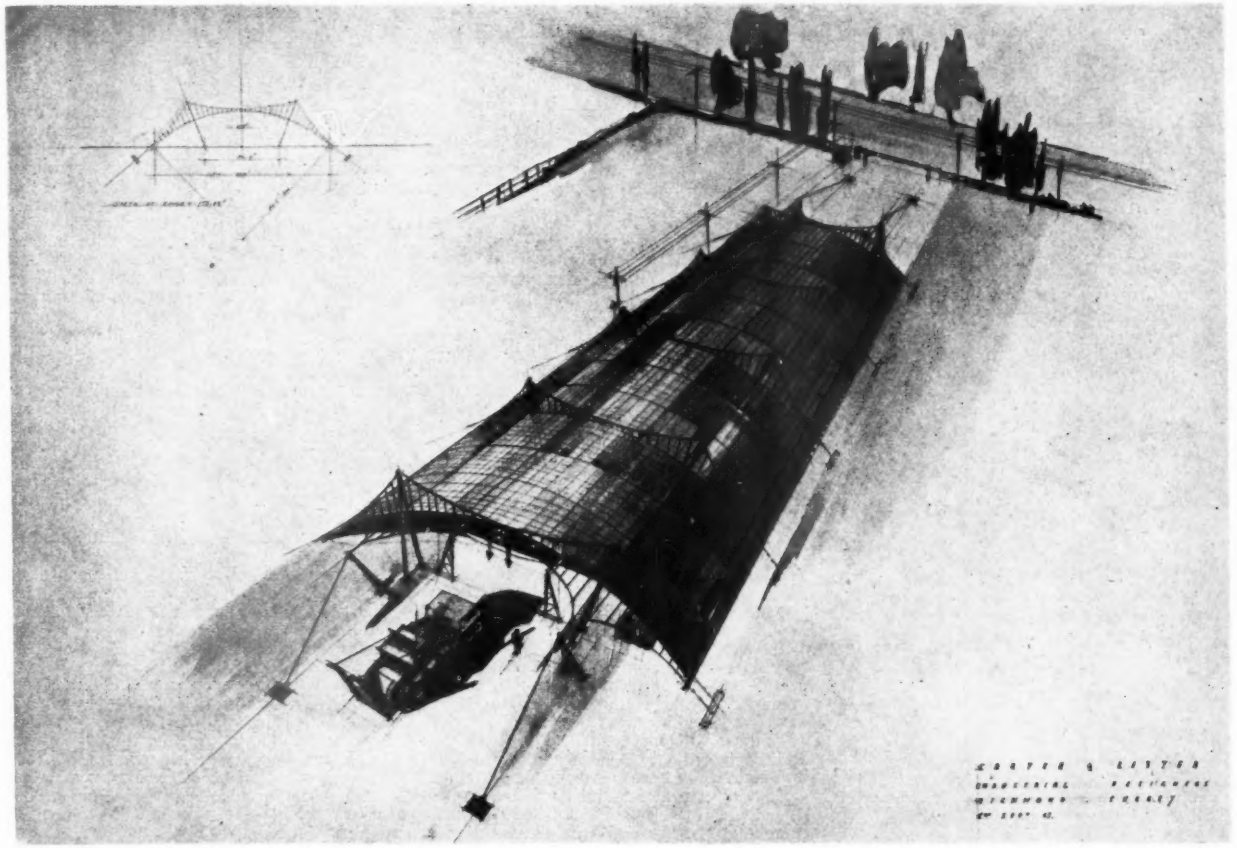
Nowadays we believe that the human being and his social needs shall be the main determining element of the urban order. This new sociological approach towards town planning, sees the city as a co-ordinated collection of differently sized groups of human beings: individuals, families, neighbourhood-communities and still larger associations.

The physical organisation of a city has to express and to foster the social functions of such groups of human beings. The more ordered or planned the physical environment of our cities becomes, the fewer are the obstructions for its inhabitants to fulfil their social functions.

This approach towards a betterment of present-day city life is nowadays used by the bulk of contemporary town-planners all over the world. It is an "irony of fate" that this most human approach towards town planning could have been so utterly misunderstood by T.H.C., necessitating him to "suggest to all planners and reconstruction experts" to be afraid of "the mortal end of all utopias."

The more so that such a sociological approach has to result in pure practical conclusions, such as the right spotting and distribution of schools and community buildings, nurseries and shopping centres, health and various recreational facilities. It is also not quite understand-

STEEL ROPE GRID STRUCTURES



The war has stimulated experiments in many types of building. Steel rope construction is one of them. Its chief use during the war has been in supporting camouflage netting to cover large areas, but two industrial designers, W. M. Carter and C. F. O. Lister, have developed it for the purpose of semi-permanent buildings where the call is for flexibility, large covered floor areas with a maximum of headroom, speed of erection, low transport weight and bulk, and a minimum of material and skilled labour. The above perspective drawing shows such a suspended steel rope grid building designed to withstand substantial dead and live loads. Site levelling is not necessary within reasonable limits in this type of structure and therefore it can be erected immediately on war devastated or other emergency sites. The segmental arch of 140 ft. span at the springing is formed of a grid suspended radially from overhead suspension systems at 30 ft. centres, the reactions from the longitudinal span ropes being received by independent rigging systems at each end. The rise of the arch is 28ft. The dimensions can be increased at will. The covering material is of water-proofed canvas sheets, laced to the grid with specially designed watertight lapping at the joints on the structural members.

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able why the " person outside the profession " should wish to flee or evade such an organised city, where all children will live now, say, in 10 minutes' walking distance to the schools, and where proper shopping facilities for the housewives will be adequately distributed.

But should anyone see in the adequate provision of all communal facilities, obstructions to the " free expansion of individuality " he can please himself and send his children to any other, further away located school, thus exposing them to the dangers of traffic. No one will object if the housewife prefers to waste her time and choose another shopping area for her daily shopping.

I cannot help comparing these fears of any new urban order with those expressed by Mr. W. Thornton, M.P., in the House of Commons :

> " Sir,—I was never more astonished and alarmed since I had the honor to sit in this House, than I have been since this day : for I did not believe that there had been any set of men, or, indeed, any individual of the human species so presumptuous and so abandoned as to make the proposal which we have just heard. . . .
>
> . . . As to myself, I hold this project to be totally subversive of the last remains of English liberty, and therefore though it should pass into law, I should think myself under the highest of all obligations to oppose its execution."

But this happened in the year 1753, when the first Bill of Population Census had been defeated.

Melbourne, Victoria. ERNST FUCHS

NFTBE Warning

SIR,—Builders in certain parts of the country are being invited to join an association not the National Federation of Building Trades Employers. As considerable confusion is being caused in consequence, perhaps you will allow me, for the benefit of builders in your area of circulation, to say that this body has no connection with the National Federation of Building Trades Employers, which is the association officially recognised by the Government and by labour as representing the master builders of the country.

My opposite number on the operatives' side, Mr. J. W. Stephenson, President of the National Federation of Building Trades Operatives, made the following statement on the subject when the question was first brought to our notice :—

> " The National Federation of Building Trades Operatives wishes to make it quite clear to its members that the wages and conditions of building trade operatives are regulated solely by the National Joint Council for the Building Industry, and that all negotiations in this connection are conducted through that body, or with the National Federation of Building Trades Employers as the adherent employer body representing building trades employers on the National Joint Council.
>
> " The National Federation of Building Trades Operatives has no negotiative connections with any other organisation claiming to represent building trades employers, all such negotiations, including those which have led to the conclusion of the Holidays-with-Pay Scheme, National Apprenticeship Scheme, and wages adjustments, have for the past twenty years been conducted solely with the National Federation of Building Trades Employers."

In the light of this statement from Mr. Stephenson comment from me is unnecessary. Builders who may be approached by any organization not affiliated to the National Federation have now been warned.

London. F. LESLIE WALLIS

It is inevitable that a whole literature should spring up round a personality like Sir Edwin Lutyens, who died on the first day of this year. Professor Reilly here paints his portrait, vividly and intimately. The background is a voyage to India in the winter of 1927-28 when he accompanied Lutyens to Delhi

LUTYENS

The Man as I Knew Him on a Visit to India.

[*By PROFESSOR C. H. REILLY*].

We can all form our own opinions of Sir Edwin's position as an architect, and the contribution he has made to our art, but a few have been fortunate enough to have known him intimately as a man, if only for a while. I was one of these few. In the winter of 1927-28 he asked me to go to India with him. Messrs. Macmillan's, the publishers, and Mr. Brendan Bracken, for Messrs. Eyre & Spottiswoode, between them were to bring out a book for New Delhi, the political background of which was to be written by Lord Lytton, and I was to be entrusted with the appreciation of the architecture.

On a bleak Thursday in December, "B.B." saw Lutyens and me off at Victoria by the P. & O. special, pushing into my hand Lord Lytton's typescript and a first class return ticket to Delhi. Lutyens promised to put me up and the whole thing was to cost me nothing. He did this and was generosity itself, but nothing is a word with many financial meanings, according to those who use it. Fortunately the substantial sum that nothing in this case meant I could bridge with the articles I sent home to various newspapers. Hence some of the details which I can now supply.

It had been a hard winter and no cross-Channel steamers had left Folkestone or Dover for several days. The snow was on the fields all the way down to the coast. At lunch, however, sitting together, we both noticed a black field among the white. Lutyens, quick as lightning, stopped the waiter. "Just see to it, please," he said, "there is a field there without any snow." Perfectly ridiculous, of course, but indicative of the light-hearted, happy mood in which we started and with which, I may say, we returned two months later, if there were some bitter moments for him, not due to me I hasten to say, in between.

Another incident of the early part of the journey which showed his care-free attitude was that, in spite of a deck cabin being reserved for us on the crowded boat, Lutyens managed to have his wallet stolen with fifty pounds in it. I remember how little that seemed to perturb him. He certainly visited the office of the Sûreté on the Boulogne Quay and gave particulars, but so I noticed did four others who had suffered in the same way. I noticed, too, that all five had astrakhan collars to their overcoats, showing the simple observations and deductions thieves make. I suppose Lutyens telegraphed for some pocket money to meet him somewhere, for he certainly entertained and spent his money very generously all the way to India and when there. He once pulled a five-pound note out of his pocket to give to his Indian servant just for me to see his astonishment and to hear how he would call on the greatest of all his deities at the sight of so rich a gift.

In the train and on the boat he seemed to know everyone. We stood by the gangway as the passengers arrived, looking down on them from the deck, and he told me before he shook hands with them—largely proconsuls and the like—who they all were. He made puns all the way when he was well. Indeed it was a sign of illness if the puns ceased and a considerable cause of anxiety to me. Walking round the deck a derrick was slowly hauling up a net full of baggage. Tapping it with his hand he said, "Derrick or little by little." Yet such things did not repeat. They were perfectly spontaneous, the outcome of health and the holiday spirit. One could not have had a better travelling companion, when one was in the same mood oneself.

When one was in a more serious mood, however, I found few topics of conversation which created any sustained interest beyond architecture and especially the Indian architecture about which I knew very little. The blending of Eastern and Western motives in that art was then very much in his mind, and perhaps because of that the differences in religion too, but politics did not interest him at all, nor did literature, it appeared, beyond the novel he had just read, nor indeed the arts in general. To painting he seemed to have a rather Victorian attitude calling for photographic accuracy and finish. Goodhart Rendel once asked me, had I not noticed among my architect friends that those who were the most genuinely creative in their own work were least knowledgeable about the arts in general and vice versa.

On the voyage, when he was not working on his drawings in the second cabin he had as a drawing office,—he dispatched a set of the Midland Bank, Pall Mall, home from Aden and photographs of Farey's perspective met him on the way back at the same spot—he was either playing chess with the Dowager Lady Ridley, who must have been a good player to make a game for him, for he told me he had once beaten Lord Simon, who used to lead the House of Commons team, or solving crossword puzzles, a fresh supply of which reached him at various places, or playing patience. He did not read much, and the new Corbusier book he had with him to review for *The Observer* I had to review for him. That was a pity, for Lutyens on Corbusier would have been extremely interesting. All he remarked about it, I remember, was that he in his youth was the Corbusier of his time, a strange conception unless he meant that he too had been an innovator. I think the chess, the patience, the crossword puzzles and the continual flow of puns and jokes were all a form of escape for a too active mind.

On our arrival at Bombay we were met by the Jam Sahib (Rangitsinghji), absorbed into his suite, and swept into his special train to spend a day or two at his capital. Of this visit with regard to Lutyens, I chiefly remember how well he entered into the fun of a fancy-dress dance which was got up in the palace for our benefit and how he insisted we should both, with the help of our Indian servants, dress up as Rajputs. This we did with silk dressing gowns and Rajput turbans and with the lids of tobacco tins as Orders. All this pleased our host and his brothers very much. Lutyens careered about and played the fool in a grand way, which entirely won their hearts. Then he would produce from his pocket a mechanical toy, of which he kept a supply. These never failed, he said, to entertain the Indian princes, but I could see it was the genuine simplicity of his outlook which they liked and which made them love him and give him his palaces to design.

As we approached Delhi over the plain, he pointed out the buildings of his new town from the train windows. The only domes to be seen were the two crowning Sir Herbert Baker's Secretariat buildings. There was nothing on his palace. At once I saw that my book was impossible. No photographs could be taken nor could one judge the total effect. Did he know this when we started and had he merely brought me out as a companion? It was a flattering thought, if a little hard on those who paid my fare.

The three weeks or so I spent in his bungalow, designed as that for the Viceroy's secretary, were a very happy and delightful time, when Lutyens was there and not brooding over his differences with Sir Herbert Baker. He used to come into my room and wake me up at 2 o'clock in the morning to tell me about them, which showed how much they were on his mind. He told me he had brought Sir Herbert out to expedite the work when the Viceroy suggested he ought to have a colleague to help him, which means that they were not sent out together as *The Times* implied in its recent obituary notice. Then he suddenly added, "Now come and see my Bakerloo," and showed me some place where the mouldings of a building of Baker's had run into a previous one of his without any attempt at stopping them off or any other adjustment. I was to find out, however, other things myself that I did not particularly like, such as the dozen or so red-tiled Surrey villas Baker introduced into Lutyens's classical landscape of trees, gardens and white porticoed bungalows. Then there is the way Lutyens's imaginative idea, of the princes on their painted elephants seeing, as they turned under the great arch (only three feet short of the Arc de Triomphe, I believe) at the end of the Mall, a mile and a half away, the glint of the Koh-i-nor diamond in the King's crown, was foiled by the palace having to be pushed back to make way for Baker's Secretariat buildings, which Lutyens intended should be on the plain below. The little atom of consolation that may be taken from this is that the plan of the town, no longer centred so accurately on the Viceroy's palace, is not quite so expressive of the Imperial age which we hope is passing, and is really more like Lutyens's own nature about which there was nothing totalitarian to be seen during my visit. Indeed his and one other architect's houses were the only places where I met mixed companies of Indians and English.

On the way back all these troubles were apparently forgotten, and Lutyens learned to dance in the modern way. Up till then he told me he had chiefly danced in his bedroom, where he went through an elaborate ballet, he said, of his own invention every morning. There were less official people, too, on the boat and, sitting at the captain's table, he showed me how to commandeer any pretty woman from the rest of the dining saloon by writing a chit and getting the captain to sign it. A little incident which pleased me was the way he gave a dinner party in the second class saloon to some returning soldiers in addition to those he gave in the first class.

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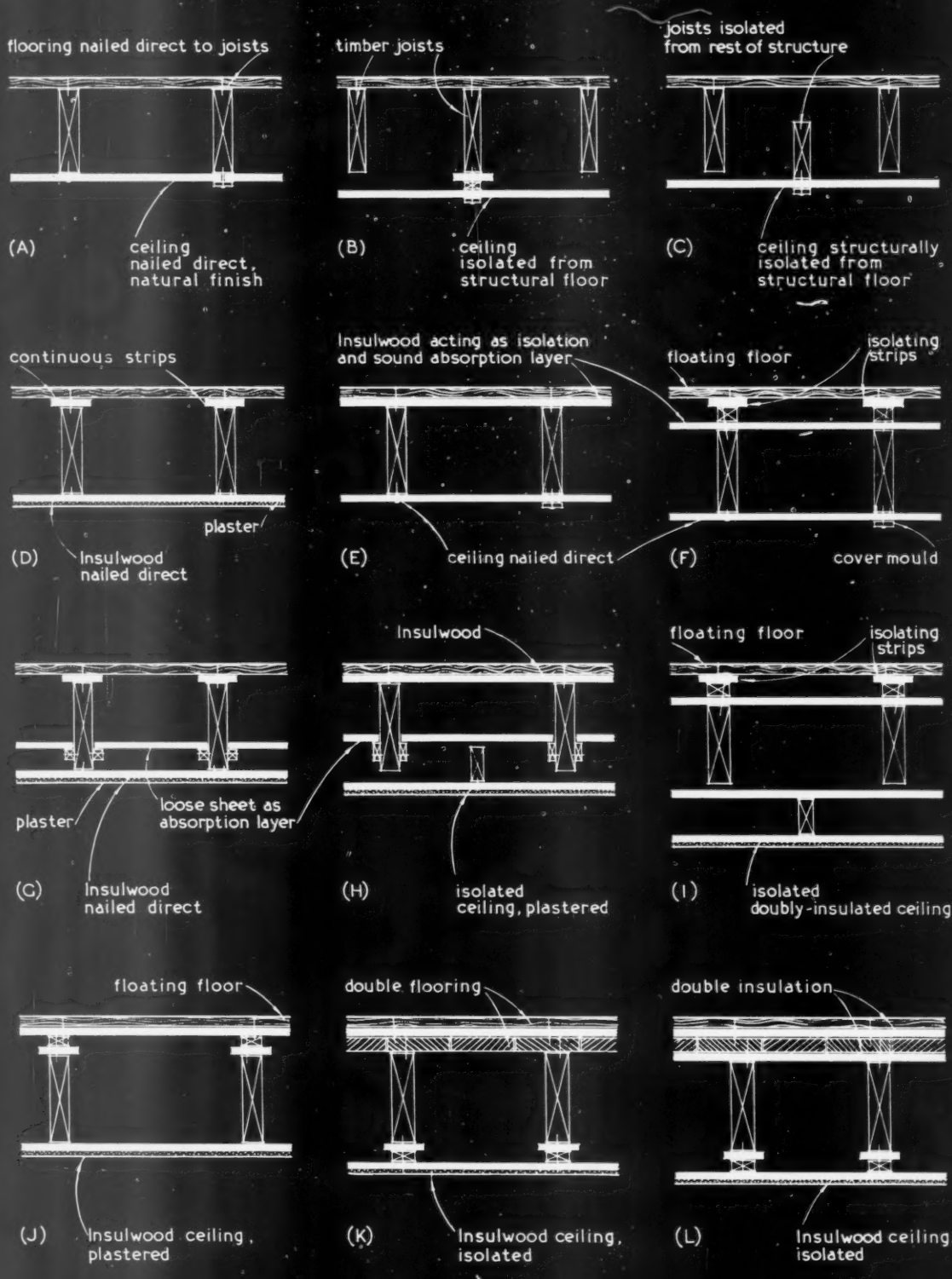
CONSTRUCTION OF TYPICAL SOUND-INSULATING TIMBER FLOORS.



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443 INFORMATION SHEET : FIBRE BUILDING BOARDS 16. SOUND-INSULATING FLOORS (1).
Sir John Burnet Tait and Lorne Architects One Montague Place Bedford Square London WC1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 928 •

BUILDING BOARDS

No. 16

Subject : Sound Transmission Reduction. Structural Detailing : Floors 1.

General :

This Sheet is the first of a group giving examples of structural detailing for sound transmission reduction, and illustrates typical timber floors.

For information on the principles of sound transmission reduction by structural discontinuity, see Sound Transmission Reduction by Structural Isolation : Sheets Nos. 12, 13, 14 and 15 of this series. ½ in. insulwood is used both as a sound absorbing and isolating medium, in the constructions illustrated.

Sound Transmission Reduction :

A reduction in the amount of sound transmitted by an insulating barrier may be effected : (*a*) by reflecting the sound back to the source ; (b) by providing for the absorption of the sound energy within the barrier ; or (c) by preventing by structural discontinuity, the sound vibrations in the side of the barrier adjacent to the source being transmitted to the " quiet " side and setting in vibration that air in contact with the " quiet " side.

A measure of Sound Insulation may therefore be effected either by confining the sound to the source, or by absorbing it within the structure separating the source from the " quiet cell."

In designing for sound transmission reduction it is essential to consider buildings *as a whole*. No degree of efficiency in the detailing of—say an internal partition between two rooms—would appreciably reduce the amount of sound transmitted by walls or floors continuous with the two rooms.

The diagrams illustrated on this and subsequent Sheets of the group are primarily intended to indicate solutions to the type of practical structural problem which arises. The above principles are exploited in varying degree, in the examples illustrated, but the efficiency of any *detailing alone* will not result in 100 per cent. sound insulation. Further, the insulating properties of any given barrier must necessarily vary with the predominant frequency, and amplitude of the sound against which insulation is desired.

Insulwood :

This board belongs to the low-density range, and has a sound absorption coefficient of 0.26 at 512 cycles per second.

The waterproofing process undergone by the board during manufacture ensures both a dry medium, and the rejection of any atmospheric moisture.

The material can be left in its natural state, or distempered, painted, enamelled, coated with plaster, or paper, etc. It may be used as an underlay and as a permanent shuttering to concrete.

Sizes, weight and other physical properties are given in previous Sheets of this series.

Detailing and Application :

The constructions illustrated suggest methods of overcoming the technical detailing problems which occur. For further information on fixing Insulwood under various circumstances, see Pimco systems of metal ceiling and partition fixing, Sheets Nos. 854, 858, 861, 864, 868, 872, 879, 884 ; and later Sheets of this series.

Previous Sheets :

Previous Sheets of this series on wallboards are Nos. 893, 895, 896, 898, 900, 902, 904, 909, 911, 912, 913, 916, 920, 923 and 926.

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PHYSICAL PLANNING

THE JOBS TO BE DONE

Britain has passed through a phase when food production, one of the basic activities of man, has shrunk in the public eye as interest has expanded in the machine production of synthetic goods. Before the urgency of war and the powerful persuasion of a government publicity campaign, cabbages could never compete with cosmetics, cars came before carrots and radios before rose-hip syrup. War has turned the tables in this sphere as it has in so many others, and food now comes at least an equal first. Unless it continues to hold this place we have no hope of ever achieving a balanced economy, for there may come a time when we can safely take mass-produced radios for granted, but we can never take food for granted. Dr. Stamp, in his article on Agriculture this week, outlines the role of the farmer and the planner in the future of agriculture. He points out that Britain has some of the finest soil and, for certain crops, the finest climate in the world, a huge market at hand and immense possibilities with a virgin field for reorganization.

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Dr. L. Dudley Stamp, whose article on Agriculture is published this week, is a B.A. and D.Sc. (London), a reader in Economic Geography at the University of London, and Director of the Land Utilization Survey. He was Geological Adviser to the Indo-Burma Petroleum Company in 1922, and Professor of Geography and Geology, Rangoon University, 1923-6. He carried out research on soil erosion and land use in America, Africa and Burma, 1934-8, and was Vice-Chairman of the Scott Committee. He is now Chief Adviser on Rural Land Utilization to the Ministry of Agriculture.

WE MUST PLAN FOR A PROSPEROUS AGRICULTURE

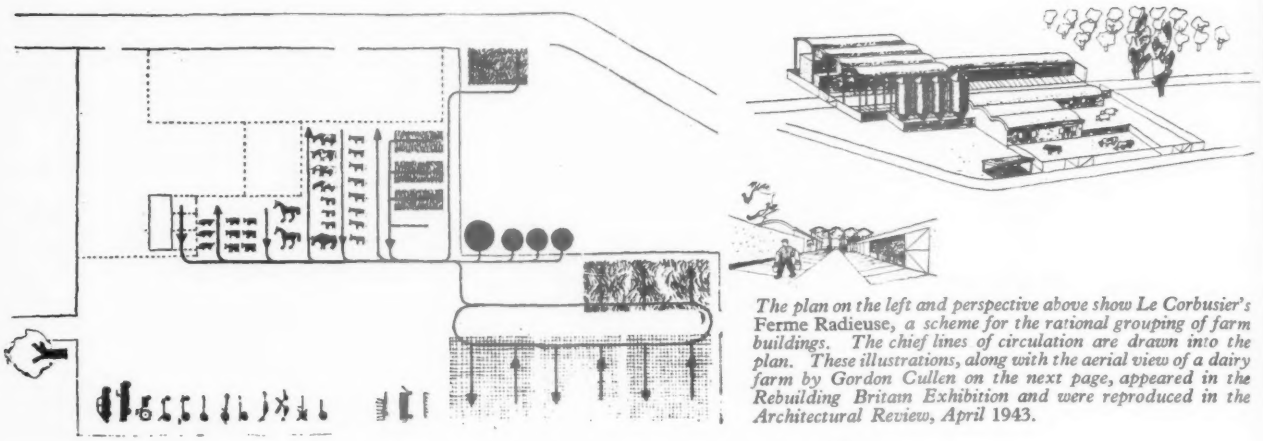
by Dr. L. Dudley Stamp

the farmer's threefold role

In a previous article on the use of land it was pointed out that the essence of national as well as local planning is to secure the right apportionment of land to the various users in such a way as to afford maximum benefit for the people of the country regarded individually and collectively.

In such a concept the farmer has more than one role to play. In the first place it is his function to produce food for the nation and to produce it effectively and economically. In this sense agriculture is an industry and in common with other industries must be afforded the conditions necessary for its proper development. It must have the right location which in the case of farming means good land or the essential balance of different types of land needed for the particular farming enterprise. There must be security of tenure. No manufacturing industry could flourish if there were an ever present fear that part of the factory might be lopped off for an extension of a housing estate. Sometimes even worse is the temptation to sell off pieces of the farm in the belief that a crop of bungalows will be more profitable than a crop of corn—only to create irregular shaped fields, the working of which is rendered permanently difficult.

In the second place the farmer has an important function, one which he shares with the forester and the landowner, but for which he receives no payment, as the guardian of the national estate. We often talk a great deal about preserving the countryside as if it were a . . . . . specimen, and we forget two things. We forget that the beauty of the countryside is in very large measure man made, and that the land is what it is, attractive to the eye and satisfying to the soul, because it is used. We forget also that in the country we are dealing with living things, plants and animals which are born, grow up, decay and die and that nature is dynamic, never static. If the farmer did not maintain a balance by his grazing animals or his plough, the whole country



The plan on the left and perspective above show Le Corbusier's Ferme Radieuse, *a scheme for the rational grouping of farm buildings. The chief lines of circulation are drawn into the plan. These illustrations, along with the aerial view of a dairy farm by Gordon Cullen on the next page, appeared in the Rebuilding Britain Exhibition and were reproduced in the Architectural Review, April* 1943.

would soon become a tangled scrub and later almost uninterrupted woodland. The farmer by maintaining cultivation is the nation's large-scale gardener.

In the third place the farmer is a big employer of labour. The 300,000 holdings find work for roughly a million people : indeed they do more than find work, they provide a mode of life. It must be mentioned that therein lies a certain element of danger. At least in peacetime there are many farmers who farm simply because they love the life : they consider little what they add to the national larder and just rub along enjoying themselves with an occasional exchange of grumbles. They are not unduly concerned by the profit motive, but neither are they very concerned to make certain that their farming is efficient, but they become very vocal when prices are such that only the efficient farm is profitable.

the farmer and the planner

How does this threefold role of the farmer accord with our general ideas of post-war planning ? What changes may we expect in the appearance of the countryside, agricultural policy and farming practice in Britain ?

The answer to the first question is that we may expect but little change. The primary function of the farmer will still be to produce food : the appearance of the countryside will still reflect his activities.

The two keystones of agricultural policy ought to be the proper feeding of the people and the maintenance of soil fertility—two aims which are not mutually contradictory but which need to be mutually adjusted and synchronized.

The proper feeding of the nation implies an adequate, varied, interesting, balanced and nutritious diet. Under wartime rationing our food may tend to be monotonous and dull, but it has at least been adequate and nutritious. The lower income levels and such priority classes as expectant mothers and young children have been better fed than ever they were in peacetime. This has been achieved by a Ministry of Food which has been a central buying and distributing organization. Before the war thirty per cent. of the people of Britain suffered from malnutritional diseases—due to inadequate or ill-balanced food. Such a state of affairs is a national disgrace which must never be allowed to recur. How can its recurrence be prevented ? The obvious solution is the continuation of a Ministry of Food, or a successor with similar functions, to buy the output of the home-producer, to import all food requirements other than luxuries, and so to control prices of essentials that the poorest can afford, and is encouraged to buy, those requisites for an adequate diet. It may be necessary to distribute some foodstuffs—perhaps milk or oranges—at under cost, but any such hidden subsidies are an expenditure on the best type of national health service—preventive medicine. They are not subsidies to any one class or group of producers.

Under such a system the central buying organization would fix in advance the prices of agricultural products of the home producer and offer a guaranteed market. With prices fixed at such levels as to give a reasonable return to the home farmer, the essential background for sound farming would be provided. No more *ad hoc* subsidies, hated by taxpayer and recipient alike, causing an upsetting of the farming rotation, but a stability of conditions which would give the farmer a chance to practise good husbandry. Instead of living from hand to mouth, with ridiculous price fluctuations which turn a bumper crop into a dead loss for the grower, the central buying organization would be able to build up stocks of many commodities, taking advantage not only of good home harvests but of buying in the cheapest world markets so exerting a steadying influence on both internal and international trade.

What the farmer needs is a schedule of prices for his varied products known in advance, and the knowledge that there will be a buyer for his output at those prices. Prices must be fixed at such levels as to encourage the progressive farmer and eliminate the inefficient and to ensure the production of the so-called protective foods—vegetables, fruit, milk, butter, eggs, meat. Other produce will take its place as part of a balanced rotation—there is no sense in starting with such staples as wheat or sugar easily produced, perhaps more efficiently, elsewhere or easily transported or stored.

Technical advances, for instance in the preparation of evaporated foods and in refrigeration, may result in rapid changes of emphasis. It would be wrong to visualize one or two commodities such as milk or beef as the *desiderata* of farming, and to realign or reorganize farms accordingly. Prairie farming with huge fields and large scale mechanization would be a retrograde step. Instead there is everything to be said for the ordinary English mixed farm. Fields of 10 to 20 acres—provided they are regular in shape—are large enough to take advantage of tractor machinery, and even combine harvesters, small enough to permit controlled grazing when under grass. Eight or ten such fields can be used as a four or five course, or as three years under crops and five to seven under long ley grass. Similarly the farm buildings must be capable of easy conversion from one use to another.

World trends are towards, rather than away from, the English system of balanced mixed farming which, at its best, is the acme of good husbandry with conservation of soil fertility and elimination of soil erosion both guaranteed.

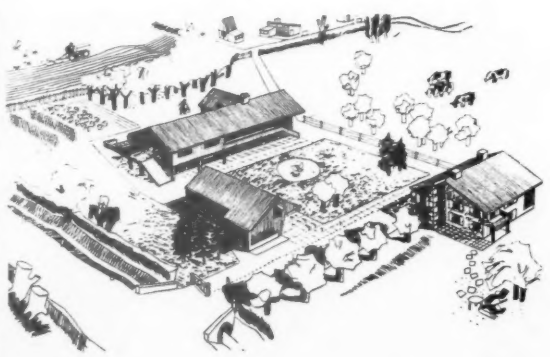
This is not to say that changes of great importance are not needed—indeed they must come. Many farms through historical accidents are in scattered fields or blocks of fields. Realignment and rationalization of holdings are needed. Hedges need straightening and superfluous ones removed ; drainage is not only overdue in many areas but existing drains often need

straightening and realigning. Hedgerow trees are usually undesirable, and are better replaced by small clumps of trees in the corners of some fields. Many lanes are too narrow for modern mechanical equipment, but temporary gaps in the hedges closed by a few strands of wire can solve this problem of field access. One of the greatest, if not the greatest, need of the countryside is adequate rural housing—properly designed cottages with plenty of storage space, provision for drying clothes, electricity, a piped water supply, adequate drainage are essential minima. The isolated cottage—and in many areas the isolated farmhouse—not only renders the provision of these services very difficult, but is incompatible with modern ideas of a full measure of community life for the rural dweller. The construction of new cottages in or near existing villages is now accepted Government policy — cottages at an economic rent to workers in receipt of a wage which not only enables them to pay such rent but also to place them on an equal footing with the factory workers in the neighbouring towns.

a future for agriculture

One of the remarkable features of British agriculture is that, despite the great changes from arable to grass, from sheep to dairy cattle, from large landowners to owner-occupiers, the size of farms has undergone little change in the last 75 years. The 300,000 holdings are nearly all run as separate units whether by tenants or owner-occupiers. We may look for the continuance of the individualistic, independent farmer, but there is great scope for both large scale co-operative enterprise and for the limited liability company running either a large contiguous group of farms—some visualize up to 100,000 acres—or smaller scattered groups. Farming needs much capital: with uncertain prices and low returns compared with industrial enterprises agriculture has failed in the past to attract the ordinary investor but there is great scope in the future, and one can visualize an expert Board of Directors with centralized machinery pools and servicing, and the farms run by well trained managers—a new profession, a new ladder by which the farm labourer can rise to levels previously unattainable because of lack of capital.

Britain has some of the finest soil and, for certain crops, the finest climate in the world, a huge market at hand and immense possibilities with a virgin field for reorganization. The pre-war flow of cheap food into the country not only depended on our export trade but on conditions of sweated labour abroad, or of land spoliation, which cannot or should not be allowed to continue in the future. No analysis of pre-war conditions in agriculture in Britain affords a valid basis for predicting the future which is pregnant with new possibilities—not least due to the rapid mechanization of farming during the war, leaving Britain with the most highly mechanized farming in the world.



PLANNING REVIEW

AGRICULTURE

Mr. Tom Williams, joint Parliamentary Secretary to the Ministry of Agriculture, assured farmers, in a speech at Stafford, that although they may be anxious about the future, they can lay their plans for several years ahead without hesitation. There would be a great shortage of food in the devastated countries of Europe and Russia for many years after the war. We must plan for a minimum of four years on the basis of maximum production, and also prepare for a well-balanced, healthy industry as a permanent feature in post-war policy.

In a leading article on February 1, the *News Chronicle* stresses the essential factor that the problem of food production cannot be considered by any nation in isolation from the others. It is a world-wide problem which can only be solved by international co-operation. Our post-war plans must be framed on the assumption that we shall achieve, and maintain, after the war, an increasing degree of world co-operation to this end.

INDUSTRY

The Times, in a leading article on January 31, discusses, in the light of a speech made by Sir Stafford Cripps in Bristol, the problem of the relations of industry to the Government. It points out that what has to be discovered is some way not merely to preserve but actively to promote the spirit of enterprise and individual freedom while working towards an organization which will ensure that the efforts of all the units serve the common purpose and increase the welfare of the whole country.

Sir Stafford Cripps is convinced that it will be impossible to avoid depressions and large-scale unemployment unless the State undertakes the over-all planning and supervision of the economic life of the nation; but he recognizes that within this framework there is room for an infinite variety of forms of ownership, both public and private, and that every industrial unit must enjoy the greatest possible independence and freedom of initiative comparable with an overriding but reasonably flexible plan.

Another leading article discusses industrial prospects in the North-East of England. A statement from a group of leading industrialists and trade unionists in Northumberland and Durham points out that the war has scarcely altered the lop-sided industrial structure of their region, because strategic considerations have prevented the introduction of any important industrial enterprises of new types; the transfer of local work-people to other areas has continued and may aggravate the region's economic difficulties after the war. They estimate that, if no action is taken, such local industrial capacity as will be needed after the war is likely to leave over 100,000 people, perhaps one-tenth of the whole working population, without employment. If further migration is to be prevented new industries will have to be established. The article points out that it should not be forgotten that an industrial location policy can no longer be framed primarily with an eye to the need for creating alternative types of employment in the former special areas. The sources of employment and the social needs of all areas have to be balanced and reviewed in the light of the nation's economy as a whole. Nor will even this suffice. If there is no serious lack of employment nationally, temporary unemployment arising in particular areas from a contraction of local industries can be remedied by suitable national measures. But no geographical redistribution of industry or of workers will restore national prosperity if there is a general deficiency of new employment; it will merely spread unemployment more evenly over all areas. The legitimate claims of Northumberland, Durham and the North Riding require a genuinely national policy for guiding the location of industry after the war; but the success of this in turn will depend, as the Northern Industrial Group recognize, on Britain's success in maintaining employment at a high level.

ELECTRICITY

The Institution of Electrical Engineers, in a report on the reorganization of electricity supply after the war, puts first among matters of immediate urgency the extension throughout the country of the agreed national standard for low-voltage distribution systems. In 1939, 7,900,000 urban dwellings out of 10,700,000 were supplied with electricity, 1,100,000 out of 2,250,000 rural dwellings, and at least 35,000 farms.

GREATER LONDON PLAN

In a written reply to Mr. Hutchinson (Ilford, U.), Mr. W. S. Morrison stated that he had the appointment of a regional planning authority for the area of Greater London under consideration, but he wished to have an opportunity of considering together the plan for the City, the plan for the area of the London County Council, and the further plan which Professor Abercrombie was now preparing for Greater London before coming to a conclusion on the matter.

NEW LITERATURE

Your Village and Mine: C. H. Gardiner. Faber & Faber, Ltd. 1944. 7s. 6d.

A Memorandum on Housing: The Communist Party, 16, King Street, London, W.C. 9d.

Memorandum on Land Control and Development: Incorporated Association of Architects and Surveyors.

Post-War Housing: Report of the Joint Conference of the RIBA, the National House-Builders' Registration Council and the Building Societies' Association.

PLANNING REVIEW

MAP PROGRESS AT MOTCP

In an article in this Journal a few weeks ago, Professor Taylor mentioned the primary survey work being carried out by the Ministry of Town and Country Planning. The present Research Division of the Ministry had its origin in the small group of workers set up by Lord Reith, who may be said to have anticipated the statement of the Uthwatt Committee that a Central Planning Authority "will base its action on organized research into the social and economic aspects of the use and development of the land."

Much data relevant to planning needs to be expressed on maps in order that it may be fully understood. Consequently the Maps Office forms an important part of the Research Division and is largely staffed by university trained cartographers. General guidance is given by an expert advisory committee, under the chairmanship of the Director-General of the Ordnance Survey (Major-General G. Cheetham, D.S.O., M.C.), and including his predecessor, Major-General M. N. MacLeod, C.B., D.S.O., M.C., Dr. E. B. Bailey, M.C., M.A., F.R.S., Director of the Geological Survey, Dr. L. Dudley Stamp, and Professor E. G. R. Taylor.

It has been arranged that the Ordnance Survey shall print and publish a co-ordinated series of maps, which are on the scale of about ten miles to one inch (1/625000).

The ten-mile maps will provide a useful picture to those who must think in terms of the whole country and to the regional planners who must consider wide stretches of Britain, while the local planner will find them helpful to relate his area to the greater whole of which it forms a part. All will need more detailed maps on larger scales, and while there is no proposal to publish such maps, the Ministry is compiling information on various larger scales for detailed consultation, and is carrying out much experimental mapping.

As yet owing to delays imposed by service priorities, only one map in the series has been published, in addition to the outline base map. This is the map of Land Utilization (provided by the Land Utilization Survey). Seven colours portray the land use, and of these perhaps the most outstanding is the yellow, which depicts the unimproved land, whether lowland heath or mountain moor, much of it potential forestry land or suitable for National Parks or other recreation.

Complementary to this map are others now in the press. The first is a map of Types of Farming, prepared by the Ministry of Agriculture for England and Wales and by the Land Utilization Survey in collaboration with the Department of Agriculture for Scotland. It shows seventeen main types of farming, primarily on an economic basis, and stresses the wide variations in agricultural enterprise which have evolved in response to varied types of physical environment.

But planners have rightly demanded information on another agricultural problem, the quality of land. To meet their need a Land Classification Map has been compiled from the work of the Land Utilization Survey which divides the land into ten main types according to its inherent fertility. Far too much of our best land has been irretrievably lost beneath a relentless tide of housing and industry, and this map should help materially in the implementation of the Government undertaking that "it would seek to prevent the diversion of good agricultural land to other purposes where there is less productive land that could reasonably be used."

Population, a subject of perpetual interest to planners, requires several maps. One will depict the density and distribution as revealed by the 1931 census, the most recent available. It will be supplemented by others showing changes in population for the periods 1921-31 and 1931-38. These are based on the details issued by the Registrar-General for each administrative area with all necessary adjustments for such complications as changes in boundary. They will show for each area the amount of change, by means of symbols of graduated size, and the rate of change by varying densities of red for increases and blue for decreases. The result is a vivid picture of the effects of many tendencies at work between the two wars. For the decade 1921-31 (for which full comparable statistics are available) a complementary map of migration of population is to be issued, showing for each area the number of persons representing the net change in population due to migration and reveals at once where there have been considerable movements of workers.

Economic resources will occupy an important place in the series of maps. The Geological Survey has undertaken to contribute both "Solid" and "Drift" geological maps to the series, which will supply a long-felt need. Already in the press is a map of Coal and Iron which shows the various fields distinguishing exposed, concealed and unworked fields, and indicates the position and size of each pit. The map will postulate rather than answer many problems, but special surveys, in which mapping the results is an important task, are in progress on such problems as subsidence, the social and economic effects of mineral working, and the restoration of land after extraction of minerals.

Two transport maps are in the press, a Road Map, distinguishing Trunk, Class A and Class B routes, with their numbers, and a Railway Map. Ports and inland waterways are still the subject of research and experimental mapping.

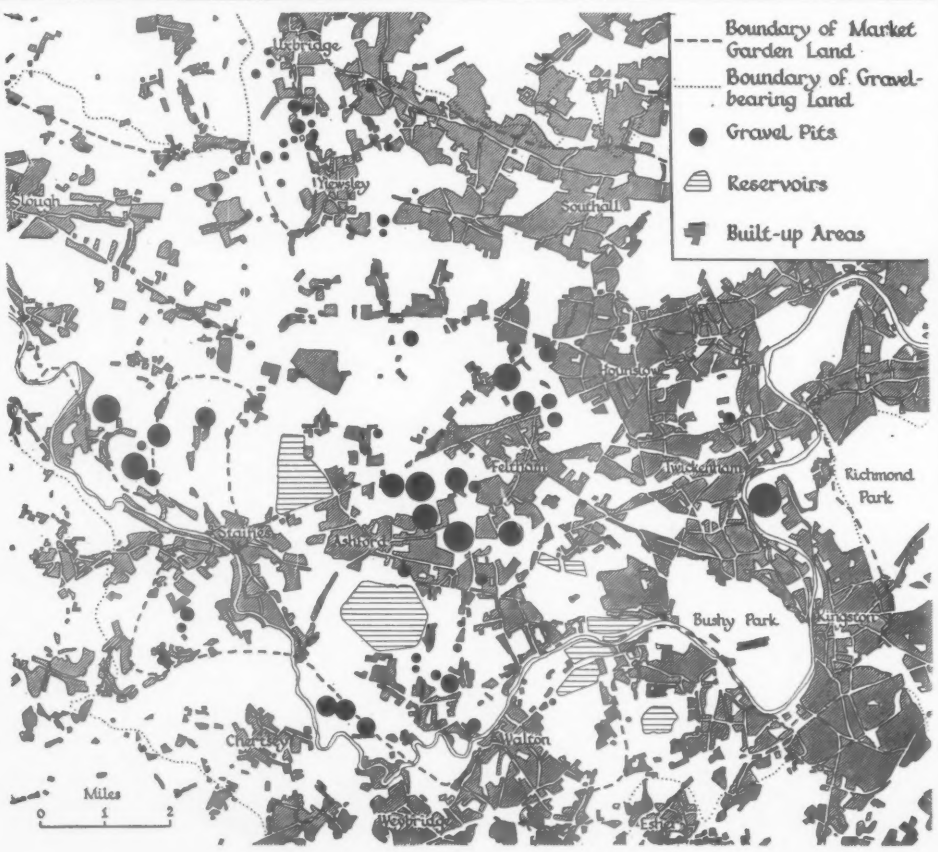
Many other uniform maps are in preparation with no immediate prospect of publication, either because they are of limited or specialist interest, or because they embody information unsuitable to publication at the present time. These include maps of various aspects of industry, land ownership, population and of public utility undertakings.

A considerable library of manuscript material is steadily being built up, and maintained in a state of revision.

An important feature of the work is co-operation with Universities and other independent bodies.

WEST LONDON GRAVEL PITS

This map, which illustrates one of the points of Professor Read's article in last week's JOURNAL, shows a tract of country to the west of London which is underlain by a deposit of easily-worked gravel often of considerable depth. The land is mostly of first-rate market garden quality, invaluable for the production of fresh vegetables for the London market. But there has been an unseemly and unco-ordinated scramble to use it for housing and industry and recently for gravel extraction, which involves the creation of vast untidy lakes with little prospect of being filled in, and less of restoration to agriculture: an increasing embarrassment to planners, and a loss to the nation of much of its most valuable soil. This provides a good example of the need for long-term planning in such a way as to consider at the same time the needs of agriculture, industry both extractive and manufacturing, housing and recreation. It should not be impossible to arrange a planned programme of extraction of minerals and subsequent restoration of the land to uses which would otherwise sterilize valuable minerals and so increase the demand for them elsewhere.



Methods of Building in the USA, *the Report of the Mission appointed by the Minister of Works, which visited the USA last year, has just been published* (HMSO, 4d.). *This week's leading article discusses the Report, which is divided into five parts:—*(1) *Design of Buildings;* (2) *Building Procedure;* (3) *Construction and Costs;* (4) *Factory Produced Building;* (5) *Summary of Recommendations. The more important extracts are given below.*

Extract from the Report of MOW's MISSION to the USA

Your Mission was appointed to survey American practice in the design and construction of buildings, in equipment and finishing and in the use of materials, with a view to securing in Great Britain in the post-war period:

(*a*) Increased speed and output.
(*b*) Reduced building cost.
(*c*) Improved standards of equipment and finish.
(*d*) Improved conditions for operatives.

In the course of our investigations we travelled through the eastern states, the Middle West and the Pacific coast areas, and visited the following cities: Washington, D.C., New York, Boston, Baltimore, Chicago, Kingsport (Tenn.), Knoxville (Tenn.), Madison (Wis.), Middletown (Ohio), Peoria (Ill.), St. Louis, Seattle, Portland (Ore.), San Francisco, Los Angeles and San Diego.

With the exception of housing, the construction we found in progress was special and temporary war-time work. But in addition to visiting pre-war buildings in occupation, we learnt much from studying one or two unfinished buildings, the construction of which had been interrupted by the war.

A considerable mass of material in the form of a collection of photographs, plans, working drawings, publications and miscellaneous documents, as well as samples and specimen tools, has been deposited in your Ministry. This collection is now being arranged and sifted. You have, however, been good enough to ask that our principal observations and recommendations should at once be laid before you in outline. We therefore postponed closer examination of our material and proceeded to set out our findings in the following pages. Detailed statements on some of the more important questions dealt with will be submitted later.

(Signed) ALFRED C. BOSSOM
G. M. BURT.
JAMES WEST.
FRANK WOLSTENCROFT.

January, 1944.

PART I. DESIGN OF BUILDINGS

We have considered the design of buildings under the following heads:

(A) Economy in design.
(B) Job standardization.
(C) General standardization.
(D) Materials.
(E) Amenities in buildings.
(F) Research and information services.

(A) ECONOMY IN DESIGN

As will be seen from figures which we quote in Part III, the skilled craftsman in the USA receives a far higher hourly rate of pay than the British; the difference between the craftsman's pay and the labourer's is also more marked than it is in this country. But by keeping steadily in mind the fact that skilled labour is an expensive item, the industry has succeeded in avoiding the high building costs which might have resulted from wage rates of this order.

The means whereby economy of design is secured may be summarised as follows:

(*a*) Design is simple, relying for its effect on the arrangement of plain masses rather than on the modelling and decoration of surfaces.

(*b*) From the general plan down to the smallest detail, great attention is paid to simplification of workmanship.

(*c*) Buildings are designed for the maximum of mechanization in constructional work.

(*d*) There is a tendency to design for larger building units, such as window spandrils of light alloy, hollow masonry units of clay or concrete for backing in walls, and large building boards and sheets.

(*e*) Generally, greater use is made of factory produced parts, as for example, steel window lintels and metal door frames complete with finished trim.

(*f*) There is a high degree of job standardization.

(*g*) Buildings are designed so that electrical and mechanical installations may proceed with the construction. The setting out and forming of openings, ducts and chases is minimised by designing for the fixing of pipes, etc., in advance of wall construction. Staircases are erected with the structural frame.

(*h*) In housing, appliances (such as solid fuel burning appliances for heating and cooking) which in this country are built in, are as a rule designed as free-standing units.

(*i*) Lavatories are planned and sanitary fittings arranged to allow of the use of the one-pipe system of plumbing, which is general.

(*j*) We noted a tendency to restrict wet processes requiring time for drying, including brickwork and plastering.

(*k*) There is a general desire to dispense with special surface finishes. Materials like coke breeze in walls and cement screeded floors were in some cases painted only. Wood wool and various acoustic materials were left without any applied treatment.

(B) JOB STANDARDIZATION

Special mention must be made of the standardization of dimensions (floor heights, spacing of columns, etc.), the object of which is to allow of a wider application of job standardization, i.e. the use of standard components, operations and plant. It is generally accepted that job standardization is a valuable aid towards improved organization and simplification of building technique. The following are more special advantages:

(*a*) Job standardization makes possible the extensive use of larger units and factory produced parts.

(*b*) The use of repetitive parts makes timing of deliveries a simpler problem.

(*c*) Many components are interchangeable irrespective of origin or maker.

(*d*) Fewer different sizes of plant are required as, for example, formwork and scaffolding.

(*e*) There is a smaller number of alternative types of component to be manufactured, stocked and handled.

(C) GENERAL STANDARDIZATION

Job standardization is necessarily limited to the single building or group of buildings, where a number of sub-contractors and manufacturers are linked together for a relatively short period. Much thought is being given in the USA to the problem of making the new developments in simplification and standardization effective in the field of housing. We found considerable interest in the work of the National Bureau of Standards and the American Standards Association.

A more recent development is the launching of a scheme for designing units and equipment so that all sizes are an exact multiple of a common dimension (fixed by agreement at 4 inches). The scheme, which is founded on the so-called "modular" system, was originated in 1939 by the American Standards Association under the sponsorship of the American Institute of Architects and the Producers' Council, a national organization of manufacturers. We suggest it would be helpful if the latest statements upon the subject could be critically examined by your Ministry and the results communicated to the American Standards Association.

(D) MATERIALS

In view of the rapidity of scientific development and social change, future generations of Americans will demand to live and work in buildings evolved by themselves and appropriate to their own times. They believe that many of the buildings of the present should be designed strictly for their immediate purpose, and that a limited life for a building may be an advantage rather than the reverse.

American manufacturers are accordingly seeking to produce new materials fulfilling the general requirements of serviceable building but costing less than traditional materials and not necessarily having the same length of life.

The general desire to economize in skilled building labour is stimulating the manufacturing industries to experiment with composite materials each combining the functions of two or more existing materials. Thus, we found many attempts to perfect a type of composite walling material combining the qualities of strength, resistance to moisture, thermal insulation and attractive finish. A typical material consists of a core of compressed fibre between two skins of asbestos cement. This outer skin is less brittle and of better appearance than asbestos cement sheets as known in this country.

It is generally admitted that the problem of providing satisfactory joints between external walling sheets has not been successfully solved in this country. We noted with regret that no fully satisfactory solution appears to have been found by the makers of any such material in the USA.

(E) AMENITIES IN BUILDINGS

The most noteworthy improvements in general amenities (particularly in housing) were of a kind that involved a considerable increase in the consumption of electricity, gas and water. As an example, we would mention that the average consumption of water per head of population is more than double the British rate.

In larger buildings we were impressed with the spaciousness and economy of planning which were made possible by developments in the technique of artificial lighting. This development is accompanied by a tendency to give less importance to daylighting conditions than is customary in this country.

Central heating systems employing either steam, hot water or hot air are installed in practically all buildings. Even in localities where the climate is temperate, open fires are rarely provided in other than better-class houses. The trend is towards district heating using a single central boiler plant to supply heat and abundant hot water to communities which may number anything up to 40,000 persons. The method is said to be economical and efficient.

We noted the universal use of weather stripping to doors and windows for the purpose of excluding draughts. The practice results in considerable fuel saving as well as in increased comfort.

(F) RESEARCH AND INFORMATION SERVICES

The importance of research to American building is fully recognized by all concerned with the welfare of the industry. Large funds are expended, and we were impressed by the excellence and variety of the equipment we saw in the research establishments which we were privileged to visit. But while many channels of contact between research workers are available, our attention was repeatedly drawn to the need for greater co-ordination on a national scale. There is no institution in the USA precisely comparable to our Building Research Station.

We were impressed with the large number of Univeristy trained scientists employed in the American building and manufacturing industries, and with the status of these workers. We consider the efficiency of the industry in this country would greatly benefit by the employment of more research workers and by the adoption of American methods of using scientific personnel.

It must always be remembered that scientific research, however brilliant or important, cannot fulfil its proper function unless results are made available and fully publicised throughout the industry. We were impressed by the efficiency of American methods for disseminating the knowledge gained by research workers.

PART II. BUILDING PROCEDURE

We have considered building procedure under the following heads :

(A) Preliminary Procedure.
(B) Preparation of Contract Documents.
(C) Tenders and Sub-contracts.
(D) Architect and Engineer.
(E) Standards of House Construction.

(A) PRELIMINARY PROCEDURE

Time is saved in American building by simpler preliminary procedure. We would particularly mention that there is no law of Ancient Lights. We suggest that your Ministry in conjunction with the Ministry of Town and Country Planning and the Health Departments review American practice in this and similar matters and examine the possibility of reducing the time, labour and expense involved in making settlements and reaching decisions preliminary to building in this country.

(B) PREPARATION OF CONTRACT DOCUMENTS

In the USA a building is fully designed before the work is put out to tender. Procedure is as follows :

(*a*) Before the architect starts to prepare his plans, the building owner is expected to supply him with the fullest instructions, and these instructions are seldom altered or amended once the work has begun.

(*b*) Drawings for the structural frame and for heating, lighting, plumbing and other services are prepared by professional experts.

(*c*) The architect supplies specifications and fully completed drawings (including many full-size details) to contractors tendering for the work.

It is the considered view of your mission that the American practice of supplying contractors tendering with complete working drawings and specifications (including all services and installations) should be adopted for all Government and local authority building in Great Britain and should be strongly encouraged by your Ministry as far as private enterprise building is concerned.

D. ARCHITECT AND ENGINEER

Since 1897, when a law requiring the State registration of architects was introduced in Illinois, there has been a steady increase in the number of States requiring registration, until to-day 43 out of the 48 States require registration of architects, and 45 require registration of professional engineers. Most of the State registration laws provide :

(*a*) That the titles " architect " and "professional engineer " may only be used by registered individuals.

(*b*) That (with certain exceptions) no building or structure shall be designed by other than registered practitioners.

We find general agreement among all concerned with building that registration is leading to an improvement of building technique.

(E) STANDARDS OF HOUSE CONSTRUCTION

The Federal Housing Administration was established to provide for house property generally financial assistance somewhat similar to that authorised by our Housing Act of 1936 (Section 110) in respect of new houses built to let. Advances from finance companies may be insured by the Administration up to 90 per cent. of the total cost of houses. Before agreeing the percentage of the loan to be insured, the Administration examines the site, roads, sewers and services, and studies the layout plan as well as drawings and specifications of the house. Inspection is also carried out during construction and at completion. Effective control is obtained through the grading of the percentage of insurance granted to the loan companies according to the quality of the siting, services, design and construction of the house. This system of control has attained very wide popularity throughout the USA, and a large number of builders regularly advertise their houses as complying with the full Federal Housing Administration standard, thus assuring the prospective buyer that he may secure a loan from any finance company or bank at interest rates not higher than official rates and up to 90 per cent. of the total cost of the house.

PART III. CONSTRUCTION AND COSTS

We have considered construction and costs under the following heads :

(A) The Cost of Building.
(B) Labour.
(C) Organization and Control.
(D) Building Finance.
(E) Machinery, Tools and Plant
(F) Cost and Distribution of Materials.
(G) Materials, New and Old.

(A) THE COST OF BUILDING

As a result of a preliminary examination of the actual cost per cubic foot of certain specimen buildings in this country and the USA, we have concluded that before the present war the relative cost of building might be fairly expressed by the figures shown on lines 1 and 2 of Table A below.

TABLE A. RELATIVE COSTS AND WAGES

British figures are standardized at 100. Rate of exchange assumed at $4.68 to the £ (the average for January–August, 1939).

	Great Britain	*USA*
Cost of building	100	75–175
Hourly wages rates : craftsmen	100	350–380
Hourly wage rates : labourers	100	215–245
Cost of materials (excluding timber)	100	110–160

The full-time working week in the USA is 40 hours, but we were informed that the American operative when in employment is able to work an average of 33 to 35 hours a week. The average annual earnings of building craftsmen in the whole of the United States in 1939 was probably not more than 2½ times the average earnings of similar workers in this country.

In an Appendix dealing with relative costs, it will be shown that the average output per man-hour is greater in the USA than in Great Britain. From observation of work in progress as well as from a close examination of methods of organization we are satisfied that the considerable differences disclosed cannot be wholly accounted for in the speed at which the individual operative works, or by the assumption that he is a better workman than the British operative. The reasons are more fundamental and can be traced to the different tempo existing in—and, indeed, expected of—the whole industry, and made possible by improved organization.

(C) ORGANIZATION AND CONTROL

We attach considerable importance to the fact that among all those concerned with the typical American building job we found contacts more frequent than here, and co-operation closer. As an instance, we would mention that building conferences on which all parties are represented are normally held at short and regular intervals.

(E) MACHINERY, PLANT AND TOOSS

The use of small hand power tools is much more widespread among all trades, especially in the carpentry trade. It is largely owing to these tools that the American building craftsman is able to develop his full earning power. We believe that if their use could be encouraged here, and their introduction assisted when necessary, we should see a marked effect on the efficiency and output of the industry and on building costs.

(F) COST AND DISTRIBUTION OF MATERIALS

An analysis of material costs at various stages from factory to consumer was recently undertaken in USA. The investigation would appear to have been fully justified, and it has resulted in strong endeavours being made to reduce the margin between production cost and selling cost. We believe a similar investigation in this country is a necessary part of any attempt to reduce the cost of building after the war.

Some stress is laid in the USA on standardization of building materials and components in respect of quality and performance as an aid to more efficient and economical purchasing of supplies.

Surveys are made from time to time by the National Bureau of Standards with the object of discovering to what extent standard specifications are used by Government departments and in American building generally. It has been found that in many cases the use of standard specifications is discouraged by the difficulty of ascertaining whether materials are in fact in accordance with the standards laid down. To overcome this difficulty, the National Bureau of Standards some time ago established its so-called certification plan, under which it issues lists of manufacturers who have indicated their willingness to supply materials complying with standard specifications and, on request, to issue a statement to the purchaser that the materials are guaranteed so to comply. Considerable use is being made of the plan by Government departments and others. The success of the certification plan has led the National Bureau to adopt a " labelling " or marking scheme for certified goods.

(G) MATERIALS, NEW AND OLD

We did not find many new materials in use, nor many new methods of using old materials. Much experimental work is going on but at the time of our visit the more interesting materials were not in full commercial production.

The development and use of lightweight concretes and lightweight aggregates has gone further in the United States than it has in this country.

As in this country, efforts have been made in the USA to increase the thermal insulation value of windows by the use of double glass. The Libbey-Owns-Ford Co., of Toledo, Ohio, manufactures double glass units consisting of two sheets of glass, separated by dehydrated air space which is sealed with a metal spacing strip. Fixing is as for ordinary sheet glass. It is claimed that appreciable fuel saving can be achieved by the use of this double glass

and that condensation trouble is avoided. The calculated heat loss is approximately 25 per cent. less than the single glass.

A material, foamed glass, is being used for refrigeration purposes on US Navy ships. We were assured that if it can be produced at a reasonable price its useful properties should ensure it a considerable application in building after the war. We are aware that experiments in this material are being carried out in Great Britain. Another material, known as microporite, a product of silica and lime, is still in the experimental stage. We suggest both these developments are worth watching.

While much experimental work has been carried on in the field of plastics, the application of these materials in building so far is inconsiderable. Experts agreed with those in this country that the future of plastics in building must depend on the cost of production. Some use has been made of extruded plastic pipes as an alternative to metal pipes when the necessary metals have been in short supply. These pipes are stated to be somewhat brittle, particularly at low temperatures, and to be liable to be attacked by rats. Plastic sheets having a base of laminated paper or fabric were used to a limited extent before the war for table tops, sinks, draining boards, etc. These uses are expected to extend very rapidly when the war is over.

The C. D. Johnson Lumber Corporation at Portland, Oregon, is developing a material, using sawdust and other wood waste as a base, and said to be inert and free from moisture movement as well as fire resistant and waterproof. We suggest these experiments be carefully followed.

The finishing of concrete walling surfaces with a view to good appearance is well understood in the USA. We found admirable examples in various Californian buildings and in the engineering works of the Tennessee Valley Authority. We were, however, repeatedly given to understand that the work of preparing good quality concrete surfaces suitable for city buildings brings this material within the same price range as stone.

In paragraph 21, when quoting American views as to the life of buildings, we mentioned roof coverings of asphalt and asbestos cement. These coverings are available in strips or sheets which show a considerable saving in man-hours for fixing. Since they are lighter than clay tiles or slates, lighter roof framing can be used. In both materials there is a good range of colours and textures.

PART IV. FACTORY PRODUCED BUILDING

We have considered the factory production of buildings and parts of buildings under the following heads :

(A) Economics of Factory Production.
(B) Design.
(C) Temporary Housing.

(A) ECONOMICS OF FACTORY PRODUCTION

Factory production does not appear to have been used to any great extent before the war. During the war a considerable number of houses have been built by this method, but progress has been dependent on abundant timber supplies and has been less than is often claimed by uninformed opinion.

Of the war-time schemes which we inspected, few were found to reach a standard of accommodation and amenity equal to that expected of normal dwellings in this country.

Factory production of complicated units such as plumbing, kitchen and heating assemblies are regarded as more promising than the production of entire houses, and many interesting schemes of this kind are now being developed in the USA.

The principal advantages of factory production are briefly as follows :

(*a*) It opens up new channels of material supplies.

(*b*) Less building labour is used on the site.

(*c*) It is claimed that under conditions of full production factory produced houses should cost less than those constructed by customary methods.

Against this, special problems of great difficulty have to be carefully weighed. We would mention the following two :

(*a*) To be economical, factory production requires a continuous production.

(*b*) The product assembled in a factory has to be packed or crated and transported to the building site for erection.

While we could find no evidence that factory production of entire houses or parts of houses during the war has effected a saving in cost as compared with site construction, we were assured that there should be a measurable saving once quantity production is in full swing. We heard this forecast made more particularly in respect of houses of steel frame construction with steel cladding.

(B) DESIGN

In the light of our observations in the USA we are satisfied that architectural design and amenity need not suffer from the factory production of houses, provided the following conditions are satisfied :

(*a*) There must be a sufficient variety of types displaying interesting differences of form and detail.

(*b*) The various types must be suitable for use in attractive combinations, having regard to levels and other site conditions and to the need for giving individual character to localities and streets.

(*c*) The greatest attention must be paid to quality of design. Since design costs for a factory produced house can be spread over a large number of houses it should be possible to spend more time and money on the design of factory produced houses than is usual with houses built by traditional methods.

(*d*) Colour must be studied with special care.

We saw interesting attempts to introduce factory-made steel houses. We investigated an experimental lightweight structural unit, built up from steel rod and high tensile steel wire, which was designed to replace timber for floor joists, rafters, etc. We also noted a light steel section having a twin corrugated web into which nails can be driven. American engineers and architects were divided in their views on corrosion dangers, but they agreed that for light-pressed sections special precautions must be taken to avoid condensation.

Among the factory produced houses inspected by us were some having outer skins of brick and other traditional materials assembled by building craftsmen on the site. It was maintained by the designers that even by this method factory production accounted for not less than 70 per cent. of the total value of the house.

(C) TEMPORARY HOUSING

The best schemes we saw were designed to include a prepared staging having all service mains placed ready in their final positions, so that when the house was delivered to the site it was a matter of only a few hours for the pipes and cables to be coupled up. We feel that as these services and other preparatory works must necessarily be relatively permanent, it is well that they should be so designed as to be capable of being used again when the temporary houses have been removed.

If it should be necessary immediately after the end of the war in Europe to build in this country a number of factory-produced houses of temporary character, so that the most urgent demand for accommodation may be met without undue delay, we would draw your attention to the stressed skin plywood houses we saw being manufactured at Lafayette for the Tennessee Valley Authority.

Though designed for a life of a few years only, we were informed that these houses with reasonanle attention would remain in good condition for as long as ten years. At the factory we visited we saw houses being loaded on trailers, fully equipped and fitted with fixed and movable furniture, for a road journey of 480 miles. The houses are composed of two or more sections each measuring 8 feet in width aud 24 feet in length. On arrival at the site the sections are erected on a site-built wood staging and bolted together, and connections for water, drainage and electricity are made. This work is done in one day.

SUMMARY OF RECOMMENDATIONS

We are satisfied from our observations in the USA that the following practices, if adopted, would reduce cost and increase speed and efficiency. We therefore recommend :

(*a*) Simplification of design of buildings for greater standardization and for mechanization of constructional work.

(*b*) Greater use of factory produced units and assemblies.

(*c*) Provision of fully completed drawings and specifications to tenderers.

(*d*) Competitive tenders for all sub-contracts and elimination of the nominated sub-contractor.

(*e*) Placing of the general contractor in executive charge, under the architect, of the whole of the work.

(*f*) Improved organization and co-operation on the job.

(*g*) Fuller provision for costing and statistical research and for publication of statistics.

(*h*) General application of the time and progress schedule system.

(*i*) Increased employment of scientific workers for industrial research in the factory and in the field.

(*j*) Dissemination of technical data directly useful to architects and engineers.

(*k*) Encouragement of operatives by the spreading of information concerning the job and by official recognition of good craftsmanship.

(*l*) Rehabilitation schemes for injured operatives.

(*m*) Greater use of plant, machinery and hand-power tools.

(*n*) Procedure facilitating earlier settlement of accounts.

We recommend that legislation be promoted with the object of securing registration of architects and professional engineers so that building plans shall be prepared by registered persons only.

Our observations in the USA lead us to recommend that investigations into the following matters be pressed forward :

(*a*) Installations and appliances for houses and flats.

(*b*) Availability of public utility services.

(*c*) Methods of thermal insulation.

(*d*) District heating and hot water supply.

(*e*) Abatement of noise in buildings.

(*f*) Standardization of materials and components for quality and performance.

(*g*) Standardization of dimensions of components and equipment.

(*h*) Artificial lighting of buildings, particularly of shops, museums and art galleries.

We recommend that an investigation be instituted into :

(*a*) Simplification and consolidation of legal procedure in connection with building.

(*b*) Minimum standards of quality in house design and construction.

(*c*) Modular standardization based on a common dimensional unit.

(*d*) Inviting of tenders without bills of quantities.

(*e*) Cost of production and distribution of materials and components.

(*f*) Tariff restrictions on plant and hand power tools.

(*g*) Cost of building finance.

We recommend that advantage be taken of American experience of the following :

(*a*) Factory produced houses.

(*b*) Materials for soil stabilization.

(*c*) Moving of entire buildings.

(*d*) Repair of damaged buildings by the cement gun process.

(*e*) Materials already in extensive use in USA such as composite slabs and panels, asphalt floor tiles and pitch for flat roofing.

(*f*) Materials likely to be more widely used after the war, such as plastics and compositions, making use of sawdust and other wood waste.

INFORMATION CENTRE

The function of this feature is to supply an index and a digest of all current developments in planning and building technique throughout the world as recorded in technical publications, and statements of every kind whether official, private or commercial. Items are written by specialists of the highest authority who are not on the permanent staff of the Journal and views expressed are disinterested and objective. The Editors welcome information on all developments from any source, including manufacturers and contractors.

STRUCTURE

1375 Jacking up a Tower

SAO PAULO TOWER IS RIGHTED WITH JACKS. (*Engineering News Record, October* 21, 1943, *p.* 623.) Huge reinforced concrete frame building righted by means involving freezing of subsoil, installation of deep concrete piers and hydraulic jacking.

A 24-story office building in Sao Paulo, Brazil, that leaned more than 2 ft. out of plumb when one corner of the foundation settled has been righted and, after 21 months of work, pushed back within ¼ in. of its original plumbing condition. The 300 ft. high reinforced concrete frame structure had almost reached completion in July, 1941, when it was discovered that it had settled at one corner. Excavation on an adjacent site for another building had started movement in a lense of fine, wet sand surrounding a group of concrete piles that supported one corner of the building.

Attempts to halt the settling by the use of cement grouting and later by injection of aluminium salt with the purpose of coagulating the soil were unsuccessful. This led to the decision to freeze the soil. 160 double-walled circulation pipes were driven to a depth of 60 ft. into firm ground beneath the lense of quicksand. Following an eight months' period of circulating brine solution through the pipes the block of ground was frozen to a temperature of −20° C. Holes of about 4 ft. diameter were then excavated through the basement of the building into the firm soil. These holes were then filled with concrete to form piers which were poured to a level slightly below the column footings and served to support hydraulic jacks.

40 jacks from 100 to 950 tons capacity each were used to right the building. Numerous small cracks have appeared in the plastered brick walls, but the building is believed to be structurally sound. The cost of this work will total about 50 per cent. of the original construction cost.

Serious settlement of a corner of this tall concrete building was recovered by jacking it on to new piers sunk through artificially frozen sand. (*See No. 1375*).

1376 Single Storey Buildings

MEMORANDUM OF THE CONSTRUCTION OF SINGLE STOREY BUILDINGS, WITH SUGGESTED PRECAUTIONS TO PREVENT COLLAPSE DURING ERECTION. *Form* 1998, *April*, 1943, *Factory Department.* (*Issued by MOLNS in consultation with MOW. Price* 2*d.*) Collapse of single storey building structures in course of erection.

Three cases of collapse during erection are described and analysed. In one case a building having steel framing collapsed owing to inadequate precautions to guard against displacement of the trusses. The two other cases refer to pre-cast reinforced concrete framework. One of them collapsed for similar reasons as the steel framework; the collapse of the other was primarily due to the use of faulty wedges. There was nothing faulty in the design of either of these buildings. The collapse of these buildings caused, in all, the death of seven men and injuries to many others. There have been other cases in which the non-provision of adequate temporary shoring, supports or fixings for buildings or parts of buildings during erection has led to collapse and to the death or injury of persons employed. The details and suggestions contained in the memorandum may be of help in avoiding such accidents.

1377 Training of Engineers

EDUCATION AND TRAINING FOR ENGINEERS. (*J. Inst. Elect. Eng., June*, 1943, *Part I, p.* 223). Report of a committee of the Institute on the education and training of engineers.

The Report contains recommendations under four headings as follows:—

1. Craftsmen and foremen.
2. Student apprentices.
3. University trainees.
4. "Post-advanced" students.

It contains also an outline of pre-war education and training in this field, the elements required of future training, and there are references also to the selection and training of teachers.

There is no need here to go into detail in abstracting this Report. But the above summary of contents shows one remarkable feature, which has in it a moral for architects. The electrical engineers look at their personnel as one group containing all grades, and they discuss training for each grade in terms of its relation to other grades. The result is, of course, a highly organized and integrated industrial organization, from the least craftsman to the greatest scientist. There is food for thought in this outlook on education.

HEATING and Ventilation

1378 Radiant Heating

PRACTICAL RADIANT HEATING. *Raymond Viner Hall.* (*Architectural Record, August*, 1943, *p.* 62.) How comfort is achieved with radiant heating. Situation of panels. Basic design. Heating media. Layout of coils. Pipe materials. Control. Cost.

Thermally equivalent conditions may be obtained in buildings with cool air and warm walls or warm air and cool walls. The conditions are more healthy and pleasant when the body is stimulated with cool air, excessive heat-loss from the body being avoided by warm walls.

Low surface temperatures are desirable so that as much as possible of the interior surfaces of a room should be used as radiating panels. Minimum air temperatures are achieved by using the ceiling as a warm panel since convection is then a minimum. In single-storey buildings, however, ceiling panels should not be used, since the heat transmission through the roof is materially increased. (It may be added that a poor temperature distribution also results in chilling of the feet.)

Using the floor as a radiating panel has advantages from the standpoints of sales appeal, ease of construction and cost. Disadvantages are that the surface temperature must not exceed 85° F. for comfort and the slightly higher air temperature, one or two degrees, produced by convection currents. The low surface temperature with consequent low heat emission often results in the need for additional heat sources. Thermal resistance of the earth prevents undue heat transmission downwards.

For single-storey buildings the best solution appears to be floor panels supplemented where necessary by pipe coils under large glazed areas or by isolated ceiling panels.

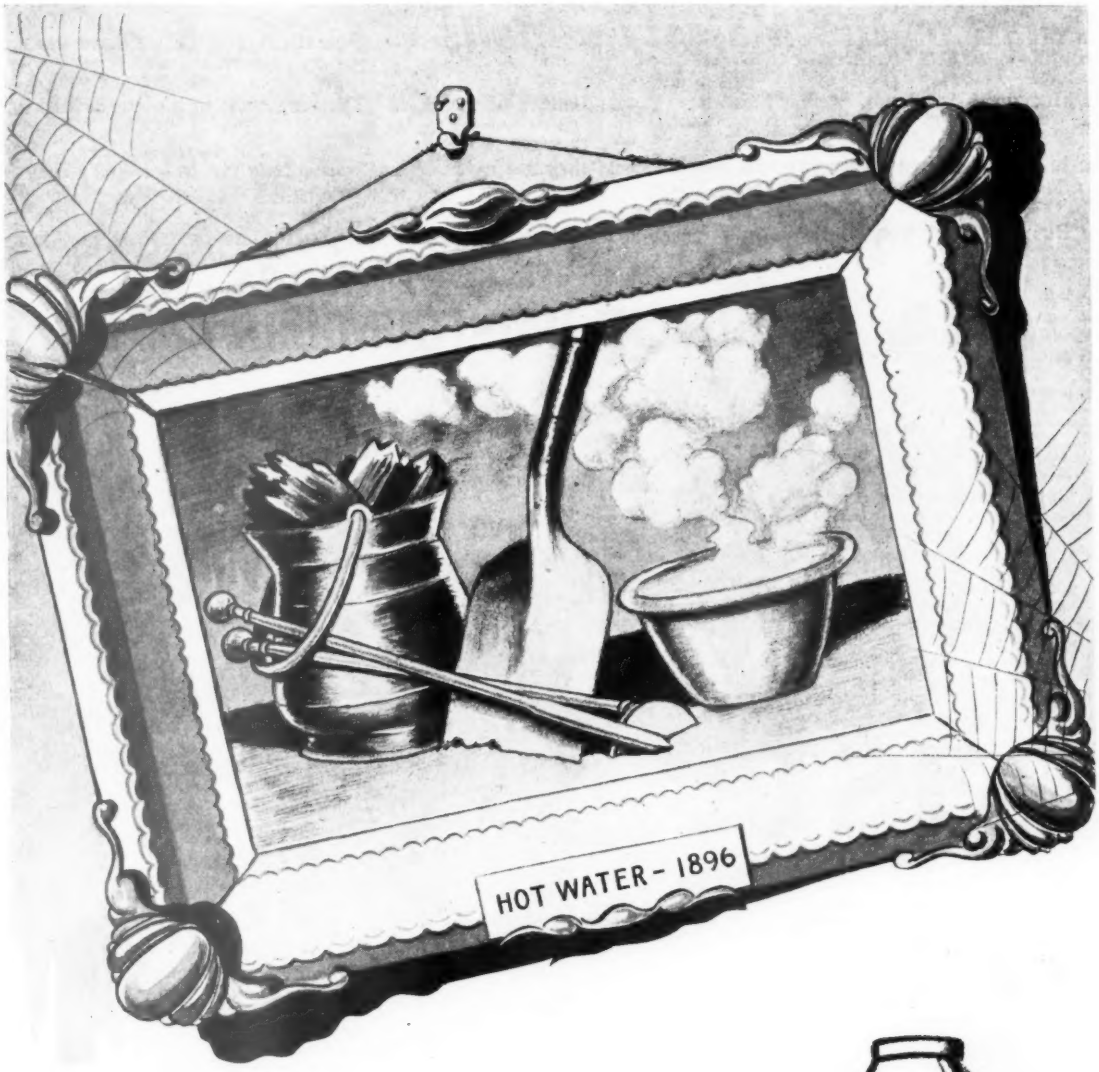
For simple two-storey buildings panels may be used in the ceiling of the ground floor so designed that enough heat flows upwards to provide 50% of the first floor requirements. Small ceiling panels provide the remainder of the heat needed by the first floor. In more elaborate construction the ground floor itself may incorporate panels.

The steps necessary in the determination of panel surfaces are given. They are based on an analysis given in the American Society of Heating and Ventilating Engineers' Guide. It is suggested that in buildings where no abnormal conditions exist, the method may be simplified by equating heat losses from a room to the heat emission from panels exactly as normal radiator calculations.

Electric elements have been used for radiant warming by embedding them in the building structure or furnishings. This method has a number of advantages but may require lower electric power costs for economical operation.

While hot air in a closed duct system has been employed, most installations employ hot water or steam in pipe coils. Records prove the life of built-in coils to be as long as that of the building itself.

For single-storey buildings the floor may consist of a concrete slab, in which the hot water pipes are encased, over gravel fill. The slab may be stained and waxed or paved with non-insulating floor materials. The spacing of the pipes may vary, but the author's usual practice is to employ 1 in. pipe spaced 8 in. to



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16 in. on centres. Supply mains are run adjacent to exterior walls and windows to prevent downward convection currents together with closer coil spacing where necessary. To obtain proper grading the level of the flow end of the pipe is about the middle of the slab. The grade is downwards so that the return end is about one-half pipe diameter below the slab, a total fall of about 2 in.

Coils embedded in the wall structure are occasionally used to prevent condensation and down draught from windows. Ceiling coils are often fixed direct to the joists, wire lath being clipped to the coils. In plastering, care must be taken that the pipes are half embedded. No cracking need be expected if provision for expansion is made at the wall lines and the initial warming-up extends over several days.

Black wrought iron pipe appears to be the best material for coils embedded in concrete. Copper may be better for ceiling and wall panels in plaster, this last having a higher coefficient of expansion than concrete. All site joints should be welded, the welds being tested by hammer blows while under a pressure of 125-150 pounds.

When one boiler serves for both heating and hot-water service, a rather high boiler temperature may be necessary. The supply to the heating installation must then be provided by mixing return water with the flow water.

Owing to the thermal capacity of the building structure it is difficult to achieve precise temperature control with embedded panels. Best results have been achieved from thermostats which control water temperature in accordance with outside temperature.

The advantages of the system may be summarized as follows : lower air temperatures, even distribution of heat, warmer feet and ankles, very slight convection currents, air remains fresh, colds less frequent, lower operating costs and the owners like it.

QUESTIONS and Answers

THE Information Centre answers any question about architecture, building, or the professions and trades within the building industry. It does so free of charge, and its help is available to any member of the industry. Answers are sent direct to enquirers as soon as they have been prepared. The service is confidential, and in no case is the identity of an enquirer disclosed to a third party. Questions should be sent to : THE ARCHITECTS' JOURNAL, 45, *The Avenue, Cheam, Surrey.*

1379 *Registration of Architects*

Q *How can I have my name registered as an architect? I was an architect for a number of years previous to the registration. I started life in an architect's office and always since then I have been connected with the building trade. When the Register of Architects was compiled I was working as a mechanical draughtsman and at present I am resident architect for a large industrial undertaking.*

A A person who has not passed the qualifying examinations cannot register as an architect unless he was practising privately prior to the introduction of the Registration Act, on August 1, 1938, or unless he joined the Forces before August, 1940.

If either of these requirements apply, you should obtain the 26-7 Regulation from the Architects' Registration Council of the United Kingdom, 68, Portland Place, London, W.1, and you will then have to obtain the signatures of six members of one of the recognized bodies on it.

SOCIETIES AND INSTITUTIONS

Speeches and lectures delivered before societies, as well as reports of their activities, are dealt with under this title, which includes trade associations, Government departments, Parliament and professional societies. To economise space the bodies concerned are represented by their initials, but a glossary of abbreviations will be found on the front cover. Except where inverted commas are used, the reports are summaries, and not verbatim.

AA

Planning Discussion

January 11, at 36, Bedford Square, W.C.1. Ordinary General Meeting of the Architectural Association. Discussion on THE ARCHITECT'S APPROACH TO NATIONAL PLANNING AND THE NATIONAL PLAN OF THE RIBA CENTRAL ADVISORY COMMITTEE. Chairman : A. F. B. Anderson, F.R.I.B.A., S.A.D.G., PRES.A.A., his place being taken later by A. W. Kenyon, F.R.I.B.A., Chairman of the RIBA Central Advisory Committee.

A. F. B. Anderson : The AA are hosts this evening to the Central Advisory Committee of the RIBA, who are going to say something about the national plan which they are now preparing. I therefore ask Mr. Kenyon, a Past President of the AA and Chairman of that Committee, to take the chair.

A. W. Kenyon : The Central Advisory Committee appreciate the opportunity of saying something about what is being done at the RIBA towards national planning.

I should like to explain why the RIBA has taken up this approach to national planning, because it may be misunderstood in some circles. People are apt to say " You cannot plan the whole of Great Britain ; this is a matter which requires the combined efforts of many different groups of people, and therefore we should leave it alone." We are very alive to this fact ; not only do we welcome all shades of thought, but we are making use of the great amount of research which has already been done. It would be wrong, however, for us to refrain from doing our part also.

We are also told that this is a matter for local authorities, each dealing with its own area. They certainly have a big task, and we do not desire to interfere in the least with their efforts ; but they are confined geographically by their boundaries, which they cannot overstep, and therefore they can plan only within them. On the other hand, we have no boundaries.

When architects talk of planning, they mean arranging things in their proper and convenient place, to make the running of a building, a town or a nation easier, and to make that building, town or nation a more pleasant place in which to live and work. Planning is not regimentation. It does not mean that people are to be made to do things in a particular way ; it does mean making it easier for them to do the things which they wish to do in a more enjoyable way.

We know now, perhaps better than we have ever known before, that we must get our big-scale plan first before we are able to fill in the detail ; and that, quite simply, is what we are doing.

A. L. Roberts : (*County Architect of Hampshire and President of the Allied Societies' Conference*) : I take it that we may understand the term " official planner " to mean more than a town planning officer, and perhaps as an official architect I may be regarded as an official planner, because I come in contact with certain problems which have to be considered in conjunction with adjoining counties. I hope that those few Allied Societies who are not active in the matter at the moment will in due course see the advantage of joining in the work and getting the information which the Committee want to complete their scheme.

It sometimes falls to my lot to consider well in advance sites for the erection of buildings. The usual course is to get into communication with the local authority, and one has to consult the planning officer, but even he does not always know what the developments may be. There may be trunk road proposals of which even the county surveyor may have very little knowledge, and there he will be acting as the agent of the Government, the actual road being a matter for the Ministry of Transport. I may select a site for an important group of buildings, perhaps in connection with some future housing development, and then find that the Government propose to run a road right through the site. This leads to delay, and we may lose an opportunity of which we might otherwise have taken advantage to choose a site which would be clear for our development. A national plan will help to prevent mistakes of that kind.

H. Braddock : (*Hon. Secretary, Central Advisory Committee*) : The most difficult part of the problem of devising a national plan lies in the provision to be made for industrial development. The Barlow Report has exhaustively examined this problem from almost every angle. The inquiry into the causes which have influenced the present distribution of industry and the industrial population has covered the social and economic fields, as well as the point of view which may be taken in the event of a new war after this one. With regard to planning, it states that a collection of local and regional plans to cover the whole country would differ considerably from a national plan conceived as a whole, in that local and national interests are widely different. The desire to create or maintain a general atmosphere of industrial activity and prosperity, and thereby attract to the neighbourhood fresh industries, is a natural tendency as long as individual and local interests are to remain prominent. This will be difficult to overcome while the industrialist is free to choose his locality and the landowner is able freely to offer his land for development, the demand and supply creating fictitious land values, a practice which I think is of the most vicious kind.

Every architect will have no difficulty in understanding the significance of the need for

a plan which is complete and homogeneous, for these two qualities are the backbone of any plan. The supposition that planning applied to each town, each area and each region can successfully overcome the problem facing us, particularly with regard to industry, is incorrect. Industry is at all times dependent upon the supply of labour, materials, power and transport, and where one goes the others must follow. It is this simple fact, and the policy of non-interference with the location of industry, which have undoubtedly been responsible for the uneconomic expenditure and the spoliation of the countryside in providing the services needed for these industries. Industry is not backward in demanding services from the community in the use of roads and the provision of public services, and it seems reasonable to suppose that some preconception of its location would be an advantage.

The planner must tackle this problem on the basis of sound reasoning, and must account for such location being in proper relationship with labour, raw materials, partly finished materials, transport and power. He must relate this labour force to the amenities of public services, recreation and the means of leisure. It need hardly be mentioned that the architect will also be interested in environment, for the architect, if nothing else, is a humanist.

E. R. Carling : You know that the Government are committed to providing a comprehensive medical service for the whole community. I have been intimately concerned with the preparatory survey. The functions of a medical service are three : the promotion of health, the prevention of disease, and the care and cure of the sick. The promotion of health involves at least six duties. The first is an adequate supply of the proper kind of food ; the second is an adequate supply of pure water ; the third is provision for the proper collection and disposal of waste and sewage ; the fourth is the provision of dry, weather-proof, convenient, well-lighted and well-ventilated dwellings, in good air and light ; the fifth is the provision of proper premises for all kinds of work ; and the sixth is facilities for recreation for body and mind—what we might call habilitation and rehabilitation.

In the care and cure of the sick and injured, I want to see an organized network. I want to see a health centre for every 10,000 of the population, a home or domestic hospital for every 20,000, a district hospital for every 200,000, and a headquarters hospital for every 2,000,000. Why ? Because the first contact of the sick person with his general practitioner, the foundation of all good treatment, ought to excite an awareness in the whole hospital system right up to the top. If the needs of the patient are slight, they may be met, perhaps, at the lowest level ; if not, they must at once reach the district hospital, and, if the total resources of headquarters are what the patient needs, there must be no obstruction and no delay in his reaching headquarters. It means a first-rate two-way system of communications from the centre to the periphery.

The provision of such a system as that on a simple plan, varied according to local requirements, will be a task for architects for at least a generation to come. You know, of course, that hospitals come at least third on the list of priorities, and we cannot expect too much for the next five or ten years ; but what we have to do is to fuse into a comprehensive whole two distinct systems which at present exist throughout the country.

What I want architects to do in almost all our big towns is to look on the immediate periphery of the town for a 100-acre site, and having found it and ensured through the planning authorities that the roads, sewers, water, gas and electricity supplies and transport will be adequate in time to come, I want them to put up in the office of every town clerk and every medical officer of health a plan of what should be done on that 100-acre site. Let these people know what they can have, because they are going to be tempted to spend from £20,000 to £100,000 on patching up inadequate, unsatisfactory buildings which cannot be made first class.

We have to have central and main hospitals in our university cities, and there are chances for a combined hospital centre which will be the admiration of the world. It is for you to draw the plans. Finally, we must have somewhere at the centre, at ministerial level, a co-ordinating body, because there are not only regional but national problems and services, and world-wide ones too.

B. Baxter, M.P.: I look upon your problem purely as an amateur. I think that the most perfect example of planning to create happiness for the people who live there, and perhaps to create character, is the Temple. In the Embankment and in Fleet Street you have great arteries of traffic, but a few yards away you have quiet and charm and tradition.

Politically, I do not know how we are going to assist you as much as we should. So far, simply from listening to debates in the House, I am not greatly impressed by the amount of planning which has gone on. Now we are to have Lord Woolton, flushed with success, to deal with it. He is a man of great character, but it is the hardest thing in the world for a Minister without a department to impose his will. I have seen it again and again ; the most pathetic Minister on any Front Bench is the Minister without Portfolio. Woolton is a lone Woolton.

While the beginning of the ideas must come from you, I hope that we shall be able to force or to inspire the local authorities to see things from their own point of view, from the character of their people, and that we shall not have a monotonous, Teutonic similarity everywhere. By all means let us have hospitals as modern as they can be made. I hope that we shall also have a State theatre for every 200,000 people, and that the wretched mediocrity of Shaftesbury Avenue will not dominate the theatre throughout the country. The English theatre may have to be saved by the provinces.

I should like to ask one question : are your services actually being mobilized now, or is most of it talk ? (Cries of " Talk ! ") I do not mean talk on your part, but on the Government's part. I have a suspicion that if the war stopped next week the local authorities would not be ready and the architects are not being used. If I were you, I should make a big row about it and try to get members of the House of Commons to support you ; because I believe that unless the man on the drawing board can get to work now we are going to find ourselves like a dog chasing its tail when the war is over, and even Lord Woolton will not be able to do much about it.

A. W. Kenyon : That is very good advice, and I hope that we shall take it.

J. L. Denman : (*Deputy Chairman, Central Advisory Committee*) : Decency combined with efficiency and imagination in planning and building, as the late Mr. Wesley Dougall so admirably stated, is the only common denominator possible. This can best be achieved by some form of national control, and I understand that the Ministry of Town and Country Planning is studying the allocation of the whole of the coast-line for its most suitable purposes, such as for recreation, agriculture, industry, shipping, boating, bathing and open spaces. The ideal policy would be the reservation of a belt of open space along the coast and in the valleys which open from the coast (a most important matter), which would be kept free in perpetuity of any erections other than essential buildings, for the benefit of the public, the belt varying in width according to the topography and the utilization of the land.

Workers' holiday centres are essential, comprising hostels or camps having proper accommodation with a full measure of concentrated recreational facilities, thereby obviating distributed and promiscuous building. Here inexpensive accommodation could be obtained, situated either within recreational zones in the inter-resort areas or within the seaside resorts themselves. With the extension of such centres, it would be possible to stagger the holidays over a longer period, thus avoiding the congestion created by the short holiday season. In the large seaside towns which cater for the masses, such centres may well be extensive in size and comprehensive in character.

The inter-resort areas should have headlands such as Beachy Head and the Seven Sisters freed of all buildings. All roads skirting the coast should likewise be open without any buildings, at any rate on the seaward side and preferably on both sides, like the coastal road between Seaford and Eastbourne. Where buildings are essential, whether permanent or temporary, they should be built in compact units.

S. Hamp : As a member of the Committee I would like the Chairman to have said more about what is at the back of their minds in the preparation of a plan.

A. W. Kenyon : To explain what the Committee is doing on the plan would require a separate meeting, because so much is being done. The first thing to do is to lay down the " bones " in the form of the trunk roads, railways, canals and so on. It is hoped in the spring to have an exhibition in London to show what is being done, and to have exhibitions throughout the country of what is being specially done in those areas.

Percy Thomas, P.R.I.B.A. : I believe the architect is the planner no matter what the subject is, because the architect plans in three dimensions, and by his training has that vision which makes a plan something more than lines on paper. That is the great contribution which we as architects can make to national and regional planning.

With regard to the Institute itself, and why we do this work, we know very well that it is not going to be the plan which any Government is going to adopt as the plan to work to. The final work must be the work of many hands and heads—the Ministry of War Transport and the Municipal and County Engineers will all have to play their part, but as nobody else set out to give a lead we architects have done so.

A. F. B. Anderson : We know that a start has been made on the drafting of town planning programmes. Local authorities up and down the country are now considering how best to deal with the rebuilding of their blitzed areas and other developments when the war ends. We hear that economists and scientists and others are collaborating in the preparation of factual information for what is rumoured to be a master plan to control all the town-planning schemes throughout the country, but we do not hear much of what the architect is doing in that work.

In what I would call the pre-planning stages of reconstruction, I think that the role of the architect is admittedly a consultative one, but even in that sphere I suggest that his qualifications entitle him to a place in the team alongside the scientist and the economist. Mr. Percy Thomas has pointed out that the architect thinks three-dimensionally. He also has powers of draughtsmanship which enable him to illustrate what he or others conceive from a flat production on map or plan, and the architect has experience of the preparatory research work which he has usually to do before he can proceed to plan a building. He has a knowledge of local building materials and methods, and I think that usually he has an historical knowledge of our cities and of the buildings they contain, and which of these are worthy of preservation in a town planning scheme.

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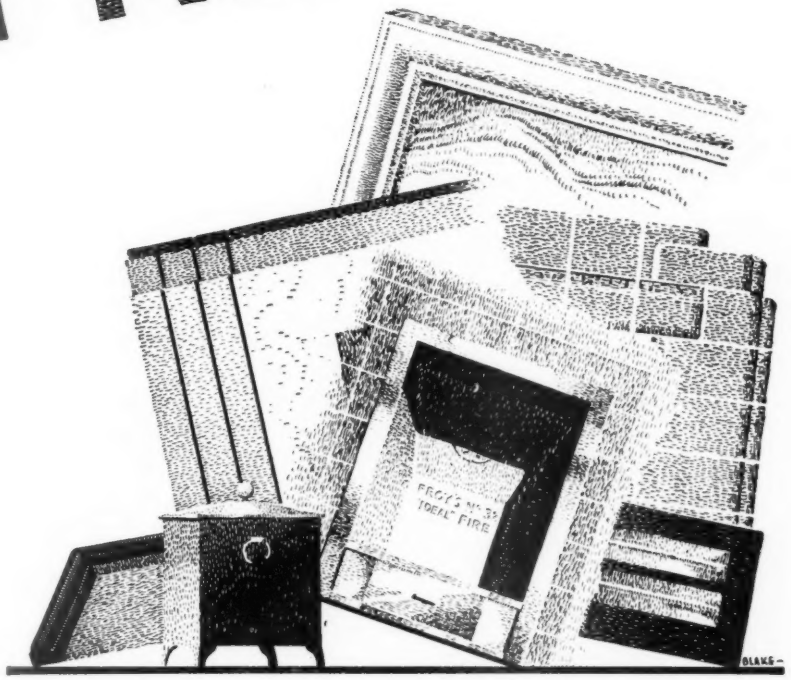

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BASIC MATERIALS	Increase over pre-war prices at end of											
	January, 1943	February 1943	March, 1943	April, 1943	May, 1943	June, 1943	July, 1943	August, 1943	Sept., 1943	October, 1943	Nov., 1943	Dec., 1943
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Portland cement	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46	+41·46
2-in. unscreened ballast ..	+71·01	+71·01	+71·01	+88·41	+88·41	+88·41	+88·41	+88·41	+88·41	+88·41	+88·41	+88·41
Fletton bricks (at station) ..	+29·19	+29·19	+29·19	+29·19	+29·19	+29·19	+29·19	+29·19	+29·19	+29·19	+29·73	+29·73
Stoneware drainpipes (British Standard) 2 tons and over ..	+37½	+37½	+37½	+37½	+37½	+43·75	+43·75	+43·75	+43·75	+43·75	+43·75	+43·75
Roofing tiles	+42½	+42½	+45	+45	+45	+45	+45	+45	+45	+45	+45	+45
Steel joists (basic sections) ex mills	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5	+47·5
Lime greystone	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53	+43·53
Sheet lead	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22	+65·22
Iron rainwater goods and soil pipes	+26½	+26½	+26½	+26½	+26½	+26½	+26½	+26½	+26½	+26½	+32½	+32½
White lead paint	+44·70	+44·70	+46·21	+46·21	+46·21	+46·21	+46·21	+46·21	+46·21	+46·21	+46·21	+46·21
RATES OF WAGES (Central London Area)												
Labourers	+22·22	+22·22	+26·98	+26·98	+26·98	+26·98	+26·98	+26·98	+26·98	+26·98	+26·98	+26·98
Craftsmen	+16·67	+16·67	+21·43	+21·43	+21·43	+21·43	+21·43	+21·43	+21·43	+21·43	+21·43	+21·43

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	A	A¹	A²	A³	B	B¹	B²	B³	C
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Labourers	1/7	1/6¼	1/6¼	1/5¾	1/5½	1/5	1/4¾	1/4¼	1/4

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F.S.I.

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