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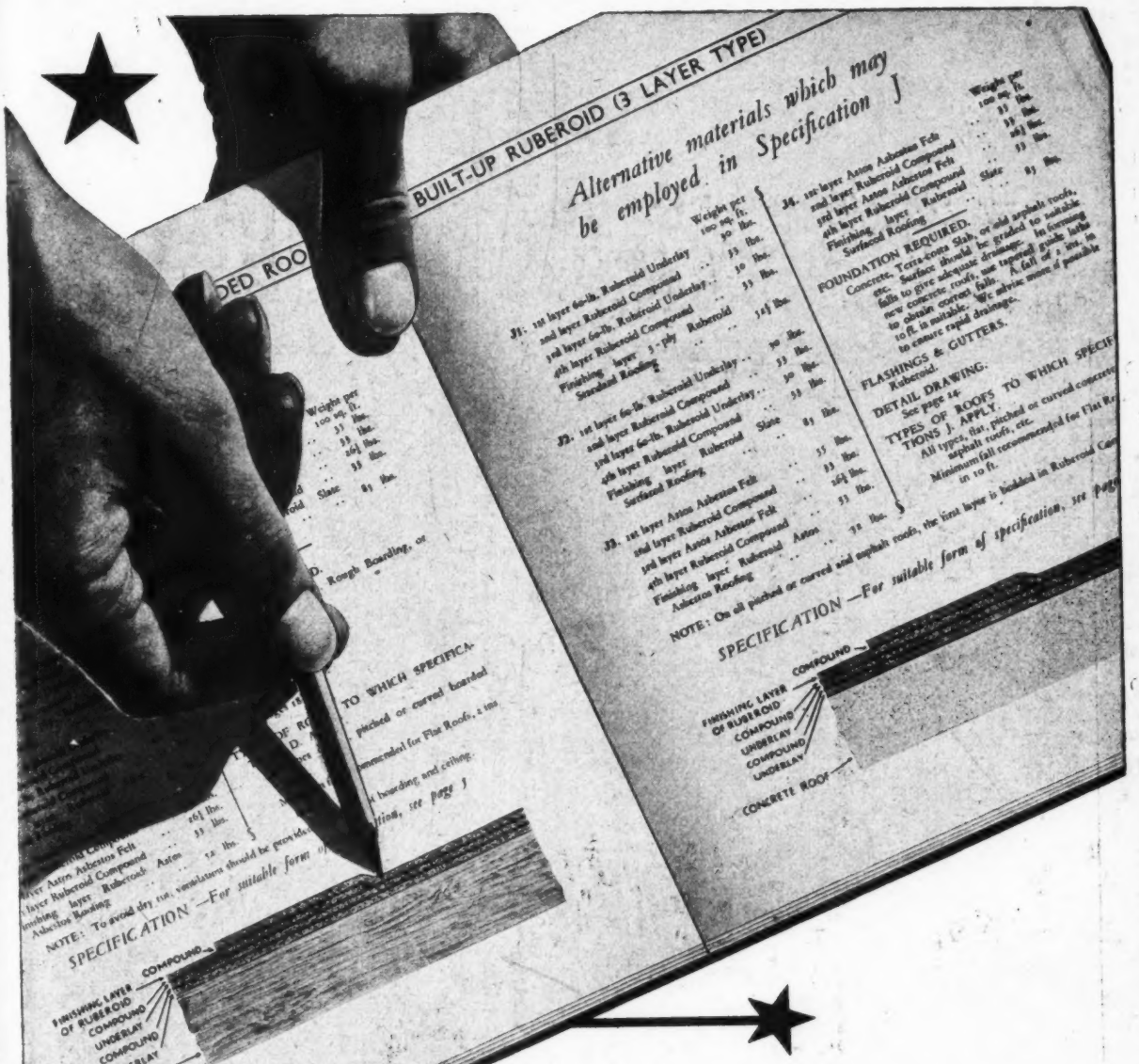

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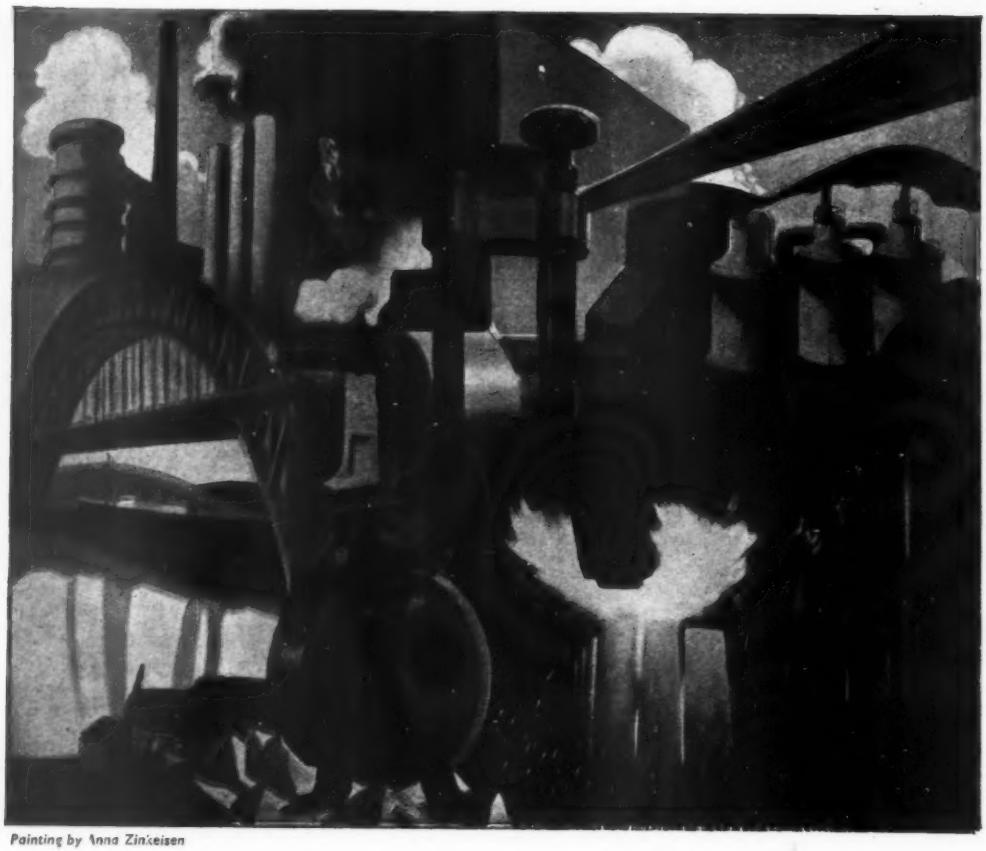

Painting by Anna Zinkeisen

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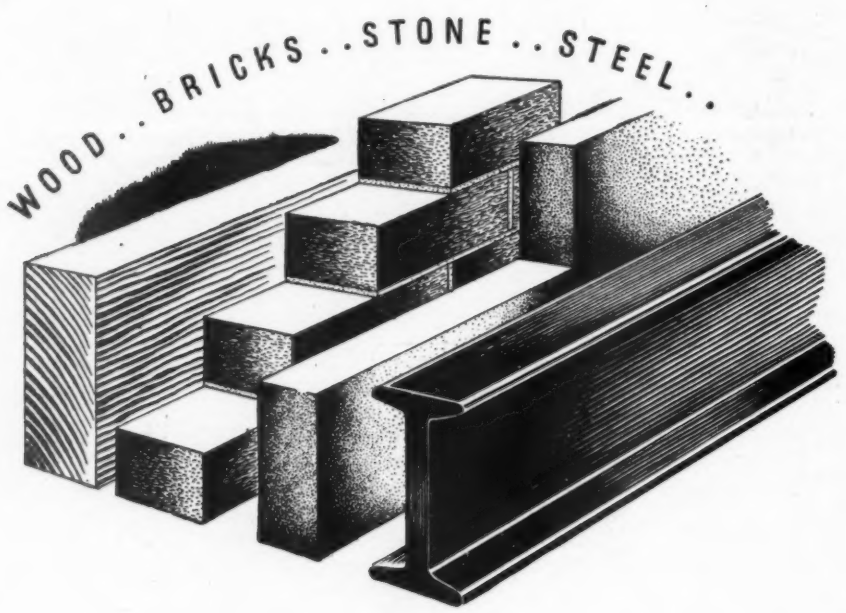

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T34

It comes as a bit of a shock to read in a newspaper column headed "Secret Service News" that one of our allies has developed a process for making bricks from clinker and cement and that this idea may assist our own reconstruction programmes. Sutcliffe Speakman make no secret of the fact that their Emperor Presses have been making similar bricks for a long time now. In fact, people who want to know more about making bricks from waste materials should put their secret service agents on our track.

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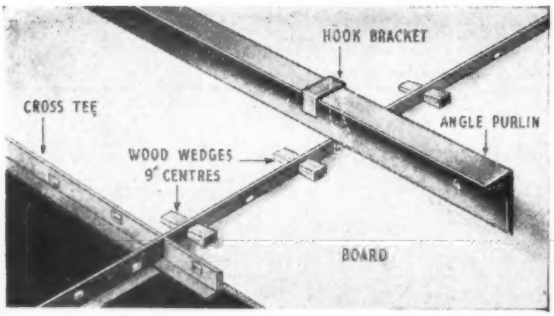
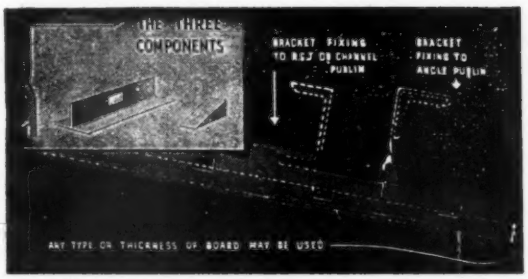
Escalator Tunnel of St. John's Wood Underground Station. Architect: S. A. Heaps.





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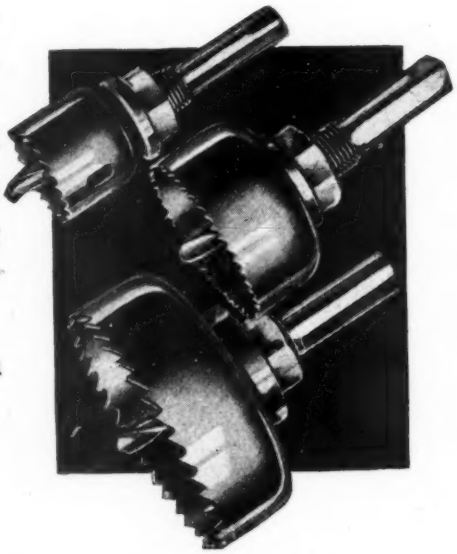

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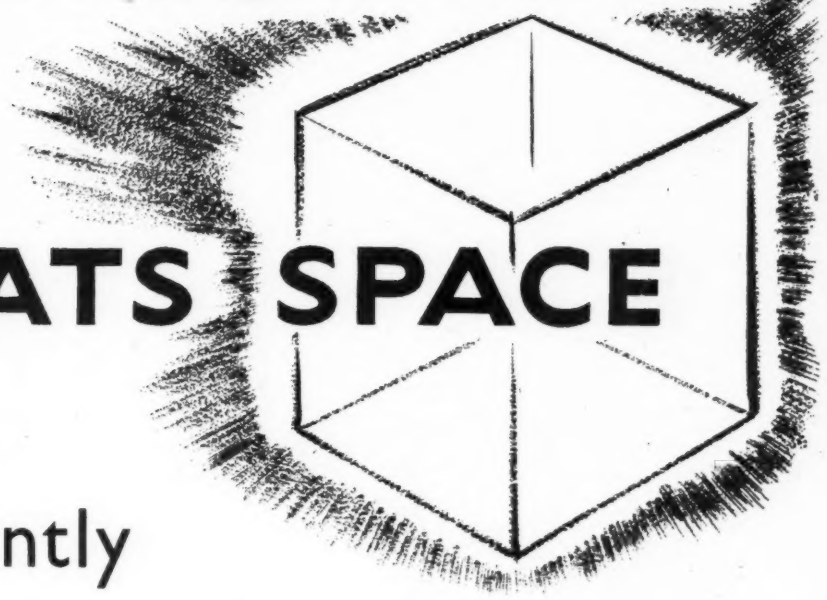

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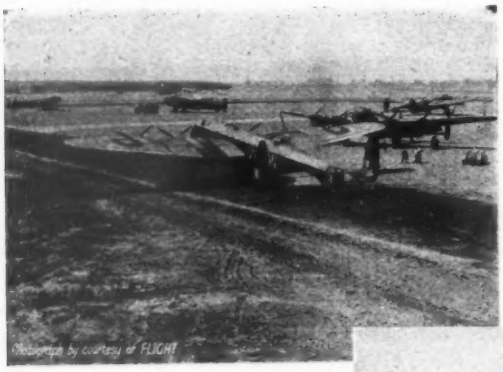

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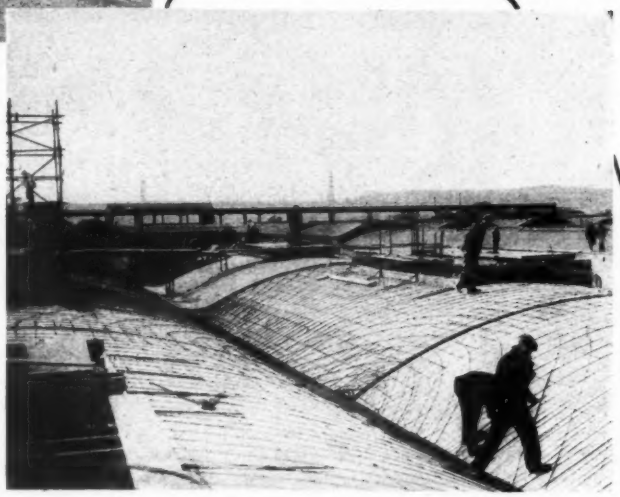

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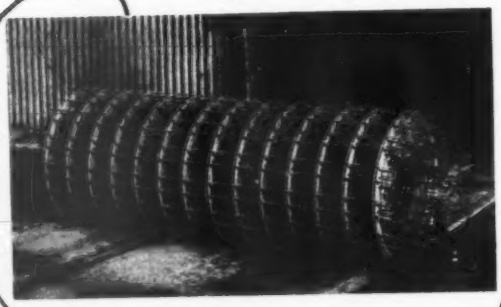

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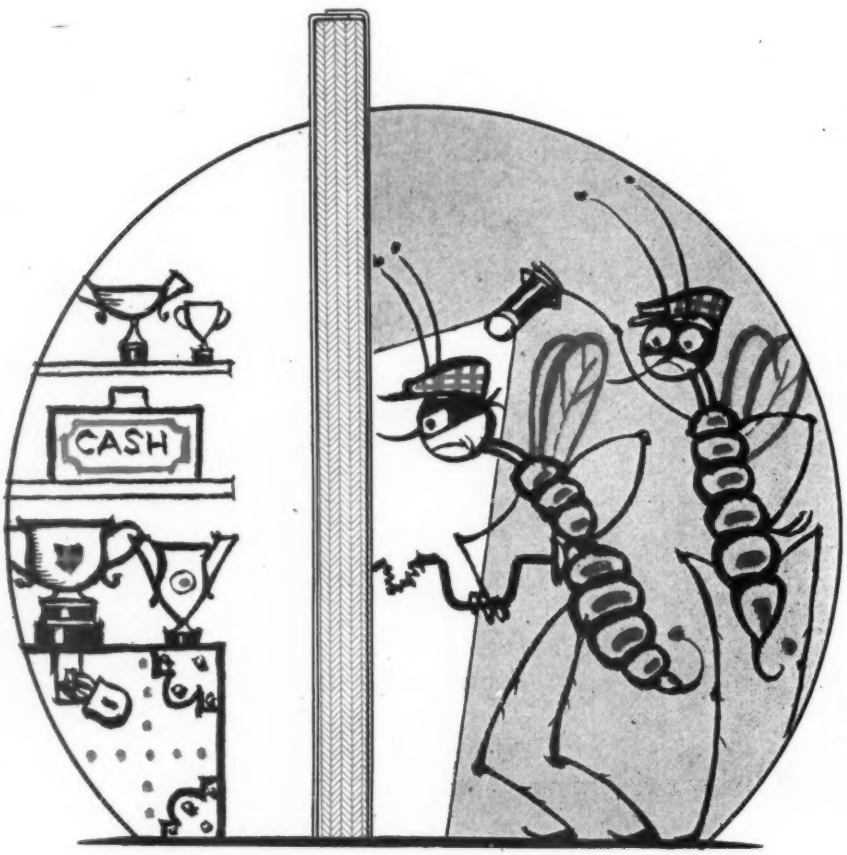

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FLEXOMETAL

In common with every other periodical this JOURNAL *is rationed to a small part of its pre-war 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 MARCH APRIL AND MAY

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 the initials as given in the glossary of abbreviations on the front cover.

LEICESTER. Hope Bagenal. *Classic Architecture : A New View.* At the College of Art. (Sponsor, Leicester Society of Architects in association with the Leicester School of Architecture.) 6.15 p.m. MAR. 21

Frederick Gibberd. *Contemporary Architecture.* At the College of Art. (Sponsor, Leicester Society of Architects in association with the Leicester School of Architecture.) 6.15 p.m. APRIL 4

Criticism of Designs submitted in the Nesbit Competition. At the College of Art. (Sponsor, Leicester Society of Architects in association with the Leicester School of Architecture.) 5 p.m. APRIL 11

LONDON. *Arts and Crafts Exhibition Society. Twentieth Exhibition.* At the Royal Academy of Arts, Piccadilly, W.1. 10 a.m. to 5 p.m. daily (Sundays 2 p.m. till 5 p.m.) Admission 1s. (Sponsor, Arts and Crafts Exhibition Society.) MAR. 14-MAR. 16

Exeter Phœnix. An exhibition illustrating the Exeter plan of Thomas Sharp. At the Housing Centre, 13, Suffolk Street, Haymarket, S.W.1. (Sponsor, HC.) MAR. 14-29

New Systems of Concrete House Construction. Exhibition. At the London Scottish Drill Hall, 59, Buckingham Gate, S.W.1. (Sponsor, British Cast Concrete Federation.) 10 a.m. to 5 p.m. MAR. 14

Old People's Welfare Exhibition. At the County Hall, Westminster. (Sponsor, National Old People's Welfare Committee in association with the Housing Centre.) MAR. 14-23

Good Heating for Every Home Exhibition. At the Royal Horticultural Hall, Vincent Square, S.W.1. (Sponsor, Solid Smokeless Fuels Federation.) MAR. 14-30

Christopher Columbus Memorial Lighthouse. Exhibition of a model of the design of J. L. Gleave, A.R.I.B.A., placed first in the International competition held before the war. At the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 10 a.m. to 6 p.m. MAR. 14-25

MARS Group (Modern Architectural Research). *Public Meeting* at the RIBA, 66, Portland Place, W.1. Various members of the Group who have recently returned from visits to different countries will give short reports on *Architectural News from Abroad.* (Sponsor, MARS Group.) 6.30 p.m. MAR. 14

G. A. Jellicoe, President of the Institute of Landscape Architects. *Reconstruction of Our Streets.* At the London County Hall, S.E.1. Second of five illustrated lectures on *Design in Daily Life.* Chairman, Fred Marshall, M.P., Parliamentary Secretary to the Ministry of Town and Country Planning. Admission free. (Sponsor, DIA.) 6 p.m. MAR. 14

Percy Delf Smith. *Signs and Amenities.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. Chairman, Clough Williams-Ellis. (Sponsor, TCPA.) 1.15 p.m. MAR. 21

Hulme Chadwick. *Modern Transport.* Third of five illustrated lectures on *Design in Daily Life.* At the London County Hall, S.E.1. Chairman, J. W. Waterer. Admission free. (Sponsor, DIA.) 6 p.m. MAR. 21.

R. E. Enthoven, lately Monuments and Fine Arts Officer, CMF. *Architectural Journey in War-time Italy.* At the AA, 34-36, Bedford Square, W.C.1. (Sponsor AA.) 6 p.m. MAR. 26

FBI Conference on Industry and Research. At Kingsway Hall. Sir Robert Robinson, President of the Royal Society, will open the Conference. The chairmen at the four sessions will be: Session 1 (Science, Industry and Community), Sir Clive Baillieu, President of FBI. Session 2 (Scientific Research and Production), Sir Stafford Cripps, K.C., M.P., President of the Board of Trade. Session 3 (Scientific Research and Industrial Expansion), Herbert Morrison, M.P., Lord President of the Council. Session 4 (The Application of Research in Industry), Sir John Anderson, F.R.S., M.P. The principal theme of the Conference will be the application of science by industry and the vital contribution research can make to industrial efficiency, the export drive, full employment, and a higher standard of living. Delegates will be present from industrial firms, large and small, from trade associations, and from research organizations. (Sponsor, FBI.) MAR. 27-28

William Allen. *Colour in Building.* At the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 5.45 p.m. APRIL 3

RICKMANSWORTH. *Building and Allied Trades Golfing Association First Post-War Spring Meeting.* At Moor Park. Singles (medal play) and Football Foursomes (¾ handicap) against Bogey will be played. Prizes for each event including a scratch prize for the singles. Members returning the best 20 net scores will qualify for the second half of the Dyke Cup Competition in the autumn meeting. Cheque for £1, which includes green fee, lunch and annual subscription to Hubert H. Hill, W. G. Hill and Son, Monument Station Buildings, King William Street, London, E.C.4, before April 23. MAY 8.

NEWS

THURSDAY, March 14, 1946
No. 2668. VOL. 103

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.*

Inquiries reaching the War Damage Commission from all classes of owners of WAR-DAMAGED LAND AND BUILDINGS disclose a widespread impression that the Commission is responsible for the actual ordering and carrying out of the work of repair or rebuilding. The Commission desires to make it clear that this is not correct. Its function is to pay the reasonable charges for repairing damaged buildings and for the rebuilding of those destroyed which are entitled to cost of works. But in cases both of repair or rebuilding, where the work has not been undertaken by a local authority, the responsibility for making all the necessary arrangements for restoration—employment of architect, builder, etc.—rest solely with the owner. Complete facilities have been provided by the Commission for owners to consult its regional offices on the specification and form of contract where a house is to be rebuilt as a cost of works case, and for the solution of any reasonable doubt whether some or all of any repairs proposed to be carried out are of a nature that the Commission would pay for. In cases where a local authority has partially repaired a war-damaged house, the owner should himself arrange for the remainder of the work to be done and claim against the Commission for its proper cost.

From AN ARCHITECT'S *Commonplace Book*

HIGH FINANCE, or HOW TO START A PRACTICE. [*From* An Autobiography *by Frank Lloyd Wright* (*Faber and Faber*).] Dankmar Adler once said to me that he got his start in life by owing money to the right people. He borrowed money to pay for his education as an architect and being unable at the time to pay it back, the people who loaned it to him (he said) felt that the only way they could ever get it back again was to give him a job—a building to build. So he got his first job. I pass this along (in confidence) to posterity for what it may be worth.

★★

***The Minister of Town and Country Planning** (Mr. Lewis Silkin) has appointed a small Committee to advise him on the appropriate machinery for SECURING CONCERTED ACTION in the implementation of the regional plan for London as a whole.*

The constitution of the Committee is as follows:—Chairman: Clement Davies, K.C., M.P., Chairman of Advisory Committee for London Regional Planning. Vice-Chairman: Lawrence E. Neal, Deputy Secretary of Ministry of Town and Country Planning, 1943-February, 1946. (Mr. Neal has just left the public service which he was invited to join as a war-time measure.) Committee: E. G. Allen, J.P., F.R.I.B.A., P.P.T.P.I., Member of Sevenoaks and Godstone Joint Planning Committee. Mrs. J. Bolton, Chairman of London County Council Town Planning Committee. E. G. Culpin, J.P., F.R.I.B.A., P.P.T.P.I., Member of the London County Council; Chairman of Standing Conference on London Regional Planning, 1937-1945. E. S. Fox, J.P., Member of South-West Essex Joint Planning Committee. Robert Grant, J.P., Chairman of County Council Planning Committee of Middlesex. A. T. Pike, O.B.E., Chairman of North Middlesex and South Herts Joint Planning Committee. G. W. Warren, Chairman of West Middlesex Joint Planning Committee. The above seven members are also members of the Advisory Committee for London Regional Planning, which is co-ordinating the examination of the Outline Plan prepared by Professor Sir Patrick Abercrombie for the outer areas of the Greater London Region. J. E. McColl, J.P., Barrister-at-Law, Co-opted member of London County Council Education Committee. W. A. Robson, B.SC., PH.D., LL.M., Reader in Administrative Law at London School of Economics. Sir C. Geoffrey Vickers, V.C., lately Director-General of the Economic Advisory Branch of the Foreign Office; Member of London Passenger Transport Board; Partner in the firm of Messrs. Slaughter and May, Solicitors. Secretary: Miss J. F. Figgis.

★★

Mr. Key, Parliamentary Secretary to the Ministry of Health: The Government has arranged for the LARGE-SCALE PRODUCTION OF BISF AND AIREY HOUSES.

Mr. Key, who was speaking in the House of Commons, said: The Government has arranged, as the result of research during the last year, for the large-scale production of two methods of construction by which it is hoped to secure a substantial increase in the number of permanent houses which can be completed during the next 12 months without any material prejudice to the production of traditional houses. The two systems are: The BISF house of steel construction, designed by the British Iron and Steel Federation. A company known as British Steel Houses, Limited, has been formed for the manufacture of these houses, which are specially suitable for erection in urban areas in groups of 50 or more; and the Airey house of precast concrete, which lends itself to a design suitable to rural areas. The houses are to be built by local builders who will be supplied at a fixed price with the necessary wall and floor components to be produced at a number of centres throughout the country. It is expected that when these houses have established themselves on a large scale the cost will not be higher than that of traditional houses. But at the outset that can not be attained. When the initial additional cost is substantial the Minister proposes to make additional grants to keep the cost to the local authority approximately down to that of similar traditional houses in the district. Advice to local authorities to enable detailed programmes to be worked out will, it is hoped, be issued in the next few days.

Mr. D. R. Hardman: Bulk orders are being placed for the manufacture of SPECIALLY DESIGNED TEMPORARY CLASSROOMS and practical rooms needed for providing meals at all schools and to accommodate when the school-leaving age is raised.

These huts, said Mr. D. R. Hardman, Parliamentary Secretary to the Ministry of Education, speaking at the North of England Education Conference in Blackpool, are not the Army huts of unhallowed memory after the last war, and however much in principle some may dislike temporary and prefabricated buildings we must press all local education authorities to adopt them. The central planning, the standard types and standard methods make the scheme economical of certain types of labour now in very short supply.

★

The Minister of Transport has asked for amendments to be made to the plan for the REBUILDING OF HULL.

The Ministry of Transport has sent back Sir Patrick Abercrombie's plan for the rebuilding of Hull principally because he proposes to carry the railways over the roads instead of carrying the roads over the railways. The abolition of level crossings has been described as the key to the scheme which had been submitted to the Minister for approval for financial assistance. Mr. G. R. Strauss, Parliamentary Secretary, in a letter read at a meeting of the Hull reconstruction committee, stated that he had taken into account the relative costs—£2,500,000 to £3,000,000 for raising the roads as against £5,000,000 to £6,000,000 for raising the railways, and also the effect it will have on railway operation costs if the railways are raised. The reconstruction committee decided to recommend the city council to instruct the city engineer to prepare an alternative scheme on the lines suggested by the Ministry.

The Ashopton viaduct carrying the Sheffield-Glossop road over an arm of the new Ladybower Reservoir, is of concrete with piers at 100 *ft. centres. It crosses the reservoir at the spot where Ashopton village lies beneath the water about* 88 *ft. deep. Ladybower Reservoir, in the Derwent Vale of Derbyshire, opened at the end of last year by HM The King, is situated roughly equidistant from Sheffield, Chesterfield and Buxton and is the third and largest reservoir of the Derwent Valley Water Board. The three reservoirs—Ladybower, Howden and Derwent—cost in all about £6,000,000 to construct. Mr. David Anderson, of London, and Mr. William Keay, of Pick Everard, Keay and Gimson, of Leicester, were joint engineers for the viaduct.*

Opening the Exeter Plan Exhibition

Mr. Fred Marshall, Parliamentary Secretary to the Ministry of Town and Country Planning, delivering his opening speech at the exhibition of Mr. Thomas Sharp's plan for Exeter, at the Housing Centre. Mr. Marshall, who was observed at the Exhibition the day before the opening studying the plan, and asking many questions of Mr. Sharp, said in his speech that he had read *Exeter Phœnix** from cover to cover. Elected to the Sheffield Council in 1919, Mr. Marshall served as Alderman and Magistrate, was elected Lord Mayor in 1933, and his activities included chairmanship of various council committees notably Plans, Markets and Town Planning. In 1930 he was elected Labour member for Brightside, was re-elected in 1935 and again in 1945. He was appointed deputy chairman of the House of Commons and has served on several government committees and enquiries including the Unemployment Grants Committee, the Home Office enquiry into the abolition of night work in the Baking Industry, and the enquiry into Police Widows Pensions. He was also elected on the panel to deal with the physical reconstruction of the country under Lord Portal, then Minister of Works. He is a member of the Sheffield and Peak District Branch of the Council for the Preservation of Rural England and co-opted as a member of the standing committee on National Parks.

Further illustrations of the exhibition appear on page 212.

* Published for the Exeter City Council by the Architectural Press 10s.

★★

Mr. Silkin, Minister of Town and Country Planning: The policy of the Government on the COUNTY OF LONDON AND GREATER LONDON PLANS is in accord with the fourth and fifth conclusions of the Barlow Commission.

Speaking in the House of Commons on the planning of London, Mr. Silkin said: The policy of His Majesty's Government on this matter is in accord with the fourth and fifth conclusions, unanimously reached, of the Barlow Commission. The plan for the County of London and the companion plan for Greater London, which covers the areas surrounding the county, between them contain a number of co-ordinated proposals aimed at achieving these objects. The plan for Greater London has been under close examination by a number of my colleagues and myself, and the following decisions have been reached:—First, the over-all growth of London's population and industry should be restrained. This is one aspect of the general policy for achieving throughout the country a better balance of the distribution of industry, and in particular for assisting the industrial recovery of the development areas.

Secondly, a planned programme of decentralization to the outer areas of Greater London should replace the uncontrolled sprawl of the inter-war period. War damage in the congested inner areas and war-time evacuation have provided a unique opportunity for effecting this redistribution. The intention is to make provision for about a million persons and concurrently a related quota of industrial firms to be accommodated farther out—mainly in a few new towns and in selected existing towns within 20 to 50 miles of London's centre. The planned developments will be given priority according to their urgency. Thirdly, it is proposed that the general lines of the decentralization and resettlement should broadly conform to the proposals made by Sir Patrick Abercrombie for dividing the area surrounding the County of London into four rings.

From the County of London and the inner urban ring round it, which form the congested areas, most of the decentralization should take place. The next ring, the suburban ring, should be regarded in general as static.

Surrounding this built-up area a green belt ring is to be carefully safeguarded, and this ring, except in permitted cases, should act as a barrier to further suburban growth. The fourth or outer country ring should serve as the main reception area for persons and industry moving out from overcrowded London into compact settlements surrounded by open country.

The implementation of these proposals rests in part upon the comprehensive legislation for land control which the Government will be introducing. Meantime it is my intention to afford guidance to the planning authorities in accordance with this statement. But while the Government endorses the main principles underlying the Greater London plan, they do not at this stage adopt a number of the individual projects for development recommended by Sir Patrick Abercrombie, such as the location and number of the new towns and the proposals for highways. These matters are being further examined in all their bearings by the Government and also by the planning authorities both at the local level and through the regional advisory committee, under the chairmanship of the member for Montgomery (Mr Clement Davies), which is co-ordinating local views. I hope shortly to be in a position, in association with my colleagues, to provide further guidance to these bodies.

MR. BEVAN'S STATISTICS

THE official statistical black-out is apparently to be succeeded by an official statistical searchlight, and for the dazzling array of figures now published we must be duly grateful. The publication marks a new stage in democratic planning. For the very first time the public as well as the civil service will have most of the essential facts on the constructional programme at their disposal. As Mr. Herbert Morrison said the other day in this connection, we "shall have the joyful sight of Hon. Members of the House of Commons having to face the hard and sometimes inconvenient facts, which His Majesty's Ministers have got to face anyway in private." Publication of figures cannot but mean that both criticism and apologetics will become more constructive.

But if the figures are to be intelligently used, they need to be digested, and examined to see if they always mean what they appear to mean. This is not in itself a criticism of the housing figures in particular—it is not, indeed, a criticism at all ; all statistical series need care in handling. In making comparisons or drawing conclusions care as to the exact definitions used, the methods of collection, etc., are of the greatest importance, and the ordinary reader has rarely enough time to dig into these technical points. We are therefore publishing a monthly commentary on the Housing and Building Statistics by an authority on the subject, and the first detailed commentary will be found in this issue. It is intended to be purely factual and objective, and to give an unbiased interpretation of the figures. Mr. Ian Bowen, who is writing this commentary for us, is a former Fellow of All Souls. During the war he was head of the Statistics Division of the Ministry of Works, and is now lecturing on economics in Oxford. In this week's article he discusses the meaning of the figures in the first progress reports for England and Wales, and Scotland. Among other points noted in his commentary is the lack of complete comparability between the series published for the two countries, a point which should be easy to remedy.

Mr. Bowen has worked out some rough estimates of the output of the industry ; he points out that various assumptions have to be made, but the general picture he draws is almost certainly borne out by the facts. It is that the output on bomb damage repair work is rather low in comparison with the output on new housing, whether permanent or temporary. The justification of the present use of half the effective labour force on bomb damage and other repair has hitherto been that this produces more dwellings per 1,000 men employed. As the events have shown, natural though this assumption might seem, it appears to take possibly as much labour to repair a house as to build a new one—and a permanent new one at that. Not only should the organisation of bomb repair work be radically improved, but the whole policy of giving it such a huge slice of labour should be reconsidered. Another result of these figures is that the

excuse or argument that there is insufficient labour for new housing no longer carries very much conviction.

The temporary housing output is not as bad as some of the critics allege. Nevertheless, it is clear that if permanent prefabrication as a long-term policy is to be an effective instrument for reducing costs, as the Minister of Health seems to intend, its planning and logistics will have to be far more successful than those of the temporary housing programme.

These figures are altogether a valuable addition to our knowledge. They face us with the gloomy fact that the permanent housing programme is only just getting under way. It looks as though 50,000 houses completed by the end of the year will be a considerable achievement, and as though the really large numbers can only begin in 1947. All the more need to plan well ahead *now*.

The Architects' Journal
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Telephone: Vigilant 0087-9

NOTES & TOPICS

BUILDING SOCIETY BOOKLETS

Three new volumes have been published in the series *Building and Society*, by J. M. Dent & Sons, for the Co-operative Permanent Building Society, at 3s. 6d. each. They are *What Housing Costs*, by Walter Hill; *The Building Industry, Its Work and Organization*, by Leslie Wallis (of the well-known Maidstone firm of contractors), and *Building Societies: Their Reform and Future*, by Edwin C. Fairchild, who is general editor of the whole series.

*

It is an admirable thing that a Building Society should have fostered and encouraged such a series and had intelligence enough to give editor and authors a free hand to express their views and so avoid the production of yet another glowing and misleading account of a patron's virtues, an undertaking that is properly left to an advertising agency, not a publishing enterprise. The three new latest volumes are well worth buying, and reading, and arguing about. Of the three I found that of Mr. Hill's the best. He emphasizes the basic fact that housing standards and supply depend ultimately on the rent that is charged to the tenant, whether he pays it as rent or in the form of monthly repayments to a building society.

*

At the moment, all the emphasis is on the production of houses, and no one yet knows how the final cost will be shared between occupier, local authority, and the national revenue. Probably the Minister of Health is, at this stage, right in dictating this emphasis, but during the next twelve months something will have to be done to make it clear who pays what. But I hope that in the meantime the result of this enterprise by the Co-operative Building Society will be successful enough to encourage them to continue with it.

UP THE GREEKS AND . . .

Recommended for all the obvious reasons—including the El Greco's and the Chatsworth Head of Apollo—is the current exhibition at Burlington House of Greek Art through the centuries. Not so familiar, perhaps, to most people will be the seventeen battle scenes by the painter Zographos recording the Greek war round about 1835. These pictures, which were presented a century ago via Lord Palmerston to Queen Victoria, have been loaned to the exhibition by H.M. the King, and, despite their fashionable naiveté, they show Zographos to be a natural decorative artist of very considerable quality. It is a pity to let them return to the Royal Library without some permanent available record being made from them. How about a King Penguin, Dr. Pevsner?

. . . POLES

So far as I'm concerned, all arguments about which is the best school of architecture in this country to-day have been settled. If the work of the students, rather than their number, is to be the criterion, the Polish School of Architecture, which has lodged during the last three years at Liverpool, is hands down the winner, and the book which they have just published* is the evidence.

*

The school, founded by Polish architects in 1942 with the assistance of the British Council, has its own Polish staff, and the students are men given leave to study from the Services. In the work illustrated, which is of a very high standard throughout, three qualities are particularly evident. First, abounding vitality coupled with an almost frightening confidence: second, a completely uninhibited use [when needed] of historical reference drawn from a rich tradition: and third, a drawing technique which for clarity and unaffected elegance [except for a few perspectives] could hardly be improved upon.

*

How has this been achieved? That, of course, is the secret of the Poles—though the quoted remark of one of the staff that training in architecture does not make an architect, but only confirms the numbers of those who will or will not become architects eventually—is some guide. It is obvious, however, that such a high standard among students can only be the result of sound and imaginative teaching, and secondly, of a wealthy reserve of archi-

* *The Polish School of Architecture* 1942-45 (University of Liverpool, 30s.)

From The Polish School of Architecture 1942-45 *reviewed here by Astragal; a meteorological station in the Tatra Mountains by Witold Korzeniewicz, 1943.*

tectural tradition upon which to draw. As to the first, the Polish course is described as being "fundamentally the same as the British course." All I can suggest is that it *cannot* be. It may be superficially similar, but fundamentally, no. The Polish students' work has a quality and inflexion which indicate, to me at any rate, a basically different approach—and one which the heads of all our schools might well study.

*

As to the second, I confess I was ignorant until last week of the astonishingly rich heritage of Baroque architectures which was the glory of Poland. I say "was" because it is now very largely destroyed, as the exhibition *Warsaw* [recently at the Housing Centre] so tragically illustrated. In this exhibition is included a range of magnificent photographs of the Baroque masterpieces of Poland—and though my Polish is a bit rusty—what a *szumny* lot they were, and what a pity so few students visit Warsaw and Cracow as well as Munich and Nancy.

*

The drawings for the rebuilt Warsaw, executed with the same *bravura* as those in the book referred to above, envisage a new city in the Baroque tradition of layout and highly monumental in its architecture. Whether you like it or not—and it's sharply opposed to English town planning tradition—you will not fail, I think, to be exhilarated by its vigour and scale. Don't miss this exhibition if it comes your way.

BLUNT PENCIL POINTS

Flayed in recent issue of U.S. arch-pix magazine *Pencil Points* are moustachioed Anglarchitect Gibberd's steel houses. Unashamed is glamauthor Maude Riley to use such adjectives as "bare, harsh, box-like and cruel," and she sighs for "the spirit of England described in terms of great and ancient country manor and baronial halls."

*

Torch-carrying A.J. hits back. "Maude, you are speaking of the houses we love—or at least of the houses we prefer to most of the others we have seen around—and this is no way to talk for a magazine which prints *Progressive* Architecture in ever-increasingly sized type upon its cover. And to call those gay little porches *protuberances*. Come, come, Mr. Editor, we have been leaning heavily on you since you took over *Pencil Points*. Don't become a broken Kenneth Reid."

TWO QUOTATIONS

First, from a sumptuous new British Overseas Airways booklet, *Air-line in Action*:—"They [the air passengers] must find themselves, both on the ground and in the air, in surroundings which will give pleasure by the taste and distinction of their decoration and appointments." Second, from an article in *Air Transport* on the Avro XIX, which is described as "the first new type of British transport aeroplane intended for operation on internal air routes":—"A lavatory is provided at the rear of the cabin on the starboard side, but at present this is not very satisfactory as a curtain is provided in place of the usual door."

*

Even a jerrybuilder would blush at such standards of privacy. And what would The Specialist say—he who made all his privy doors open inwards so that, if all else failed, the foot could be pressed against them? You can't press your foot against a curtain.

ASTRAGAL

LETTERS

E. Sylvia Pankhurst,
Editor New Times and Ethiopia News

Jack Pritchard

F. G. Lees

Reconstruction of Ethiopia

SIR,—May I correct one point in Astragal's interesting observations relative to the visit of Sir Patrick Abercrombie to Ethiopia? Astragal states that Abyssinia is being energetically reconstructed under the direction of a British General who is adviser to the Emperor. This is not correct. Brigadier Cottam is at the head of the British Military Mission which is training the Ethiopian Army. He is showing much enthusiasm and energy in that valuable work, but Brigadier Cottam confines himself to army matters. The reconstruction of the country devolves on the various Ministries, headed by Ethiopians, with, in some cases, British advisers.

I was in Ethiopia some months ago and was greatly impressed by the remarkable progress made since the liberation. Your correspondent would, I believe, find many changes since his visit to Ethiopia, which apparently was some time ago. Many new buildings are being erected, and many left unfinished by the Italians have been, or are being, completed. The Ministry of Education has building work amounting to a quarter of a million pounds on hand. The contract for the building of the Princess Tsahai Memorial Hospital has been signed

EXETER PLAN EXHIBITION

Top: Mr. Fred Marshall, Parliamentary Secretary to the Ministry of Town and Country Planning, opening the exhibition of Mr. Thomas Sharp's Plan for Exeter at the Housing Centre. Left to right: The Sheriff of Exeter (Mr. H. Bradbeer), Mr. Fred Marshall, Mr. Edward Newman, the Mayor of Exeter (Ald. F. H. Tarr) and Mr. Thomas Sharp. Centre: The Mayor of Exeter (right) and the Sheriff of Exeter examining the model. Bottom: A close-up of the model of the proposed new city. The exhibition is open until March 29. An illustrated article on the plan, by Mrs. Margaret Tomlinson, an architect and a resident of Exeter appeared in our last issue. There is another view of Mr. Marshall opening the exhibition on page 208.

and the work is going ahead. A partially constructed building was presented by the Emperor, on a magnificent site, for this hospital. Plans drawn by Mr. Lionel Pearson, F.R.I.B.A., the famous hospital architect, are being used in the completion and enlargement of the building.

E. SYLVIA PANKHURST,
Editor,
New Times and Ethiopia News.

Woodford Green

Pooling of International Experience in Domestic Heating

SIR,—The experience of the war has confirmed the advantages to be gained from the friendly exchange between nations of scientific and technical knowledge, and it is hoped that this policy of pooling information will become a regular feature in the industrial life of nations, contributing much to the advancement and welfare of their peoples.

As a practical step in this direction, we have pleasure to announce that by generous agreement with the Federal Housing Administration of America, and the active support of the Ministries in this country concerned with housing, we have been able to arrange the visit to England of Mr. R. K. Thulman, well-known US specialist on small-house heating. Mr. Thulman has now arrived in this country and has started his study of domestic heating from the British viewpoint.

It will be widely appreciated that the difference between the American and British approach to heating problems is one of national temperament and climate, but at the same time it is felt that there is a great deal each country can learn from the other. In pioneering another stage in the history of heating progress, we hope to have set a valuable precedent for the future.

JACK PRITCHARD,
Bratt Colbran, Ltd.

London

Horses and Students

SIR,—Since a certain headline, referring to the treatment of horses, has now appeared twice in the JOURNAL, I call for it to be used a third time, but in an amended form, with reference to students. As the profession must be well aware of the fate of horses by now, I ask equal publicity be given to the fate of those students whose studies were interrupted at the beginning of the war.

Of these men, I am one of the fortunate few, who through the medium of correspondence courses and the weekly tonic of reading the JOURNAL, have been able to keep in touch with at least some developments. In other respects, more typical of the majority, I was twenty-one when I joined the army; now I am nearly twenty-six and have all the post-Intermediate studies to cover yet, to say nothing of what I have forgotten. If I have forgotten much, what of those who have been out of touch with things architectural all these years?

In brief, we cannot hope to obtain a job remotely worth the name, before reaching the age of thirty, and yet many of us have to look forward to another weary six months in the services before we can return to the only work we deem worth while. Questions to the RIBA, half a dozen Ministries and Departments, and the House of Commons itself, produce one answer: "The matter is under consideration." Has the JOURNAL or any of its readers any information or gleam of hope to give on this, to us, very serious matter?

F. G. LEES,
1st Royal Gloucestershire Hussars, C.M.F.

This week we publish the first of a series of commentaries on the Government's housing returns, which are to be issued each month. The object of the series is to supply a factual and unbiased interpretation of the official figures by an expert statistician. This week, Mr. Bowen summarises and draws conclusions from the first of these Housing Statistics issued by the Ministry of Health and the Department of Health for Scotland. The need for a careful analysis of such statistics, such as Mr. Bowen here provides, and some of the main conclusions reached in his first commentary, are stressed in our leading article on page 209.

HOUSING STATISTICS

A MONTHLY COMMENTARY ON THE OFFICIAL RETURNS

by

Ian Bowen

By the end of January, 1946, there were, in Great Britain, 3,469 Permanent and 12,751 Temporary houses completed, under the various post-war programmes (including houses completed before July, 1945, and the rebuilding of war destroyed houses). In addition, space for 101,153 family units was found by requisition and conversion and adaptation of existing premises, temporary hutting and repair of severely war damaged, unoccupied, premises. The temporary house programme has so far been 3½ times, and the requisitioning, etc., programme 29 times, as effective as the permanent house programme in providing accommodation.

The total effective labour force now employed in the industry is estimated at 690,800 as compared with 525,360 in July, 1945, a rise of 165,440, at an overall average rate of intake of 27,570 a month. About 90,000 of the total labour force are engaged on new housing work (including site preparation and temporary housing); 34,450 of these are engaged on the actual erection of new permanent houses.

HOUSING ACCOMMODATION PROVIDED

For England and Wales the figures are:—

TABLE

Permanent houses constructed by—	
Local Authorities	352
Private builders under licence	1,116
Rebuilding of war destroyed	441
Temporary houses completed	12,025
Other housing accommodation (conversions and adaptations, repair of unoccupied war-damaged premises, huts and requisitions)	99,123
Official total of "families rehoused"	113,057

The last item schedules any work of similar character done by private builders working on private contracts.

The Return for Scotland gives the figures in a different way:—

TABLE II

Permanent houses constructed by—	
Local Authorities	1,560
Private builders under licence	Not known (451 licences granted)
Rebuilding of war damaged houses	No information given
Temporary houses completed	726
Other housing accommodation (requisitioning with conversions and adaptations "where necessary")	2,030
Total	4,316

But this total of 4,316 is not the total number of "families rehoused"; according to the Department of Health for Scotland the number of families rehoused is 3,172.

It may be that the Department of Health counts the numbers of families rehoused, whereas the Ministry of Health estimates them from its estimate of accommodation provided; whatever the explanation, it would be more convenient for following progress if the statistics were put on the same basis.

RATE OF PROVISION OF ACCOMMODATION

To arrive at the six-monthly rate at which housing accommodation is being provided, it is necessary to subtract, where possible, the amount provided before July 31, 1945. This can be done for the Local Authority schemes but not for private enterprise; however, the error involved here may be small and partly cancelled by other omissions. The consolidated result may be tabulated as follows:—

TABLE III

Housing Provided in the Six Months ending January 31, 1946, in Great Britain

			Average per month
Permanent Housing—			
Local Authority schemes—			
England and Wales	352		
Scotland	896		
		1,248	208
Private enterprise under licence including war-destroyed houses		(1,557)	259
Temporary Housing—			
England and Wales	10,324		
Scotland	712		
		11,036	1,839
Total		13,841	2,307

Thus the average result of the new housing efforts has been the provision of 2,300 new dwellings per month, 80 per cent. of the total being the contribution of the temporary housing scheme. On the other hand, about 10,000 new dwellings a month were being provided from other sources, *e.g.*, by repair of unoccupied war damaged premises (this item contributing the lion's share of 7,000 a month to the total), by requisitioning and conversion and adaptation of existing premises (about 2,800 a month), and a few other items, such as temporary huts. Presumably most of the 7,000 a month war damaged premises were in London, and none is recorded for Scotland.

The importance of the monthly rate is that in the long run the provision of labour and materials must be geared to this rate, and it is not only the total number of houses in a programme that matters but also the peak rate at which it is intended to produce them. Moreover, for forecasting purposes the rate at which houses are passing through the various stages of planning and production is the key to diagnosis of the bottlenecks, if any should arise. This procedure will be followed as far as possible in the next few sections, but, of course, it will be easier to follow rates in a few months when several returns have been published.

HOUSES UNDER CONSTRUCTION

The number of houses under construction is not given exactly but the position can be assessed with a fair degree of accuracy. For Great Britain the figures can be summarized:—

TABLE IV

Houses under Construction in Great Britain

Permanent Housing—		
Local Authority schemes—		
England and Wales	16,765	
Scotland	7,361	
		24,126
Private enterprise under licence—		
England and Wales	(c. 8,226)	
Scotland	(say, 400)	
		(8,626)
Temporary Housing—		
England and Wales	13,600	
Scotland	1,946	
		15,546
Tota houses under construction		48,298

In round figures it may thus be said that there are 48,000 houses now under construction, of which nearly 33,000 are permanent and over 15,000 are temporary. In addition there are 22,627 temporary houses on which slabbing work is in progress and 16,520 where the slabbing work has been finished but erection not yet started.

THE LABOUR POSITION

The labour position, derived from Table 64 of the Statistical Digest, and from the table on p. 6 of Cmd. 6744, is shown in Table V below. The total effective labour force means the total number of males aged 16-64 in the building and civil engineering industries, less clerical workers, unemployed registered at the labour exchanges, and "men in transit between jobs." At July the total in the industry was 586,000; clerical workers were 35,000, unemployed 6,000, and hence "men in transit" (by inference) must have been 20,000 at that date, leaving an effective operative labour force of 525,000. Deducting the same three items each month (on the assumption that the percentage of "men in transit" to other operatives stayed constant) we get:

TABLE V

At the end of	Effective Operative Labour Force	On New Housing (including site preparation and temporary houses)
1945—July	525,000	32,000
August	537,000	37,000
September	573,000	47,000
October	591,000	51,000
November	636,000	61,000
December	n.a.	n.a.
1946—January	691,000	90,000

It is interesting to note the importance of housing work other than new housing. This amounted to over 345,000 men in January, 1946, or half the effective operative labour force.

"Other building and civil engineering work" swallowed up a large proportion of the rise in the labour available over the last six months. This other work includes work for the Service and Supply Departments, repairs and maintenance and war damage repairs to buildings other than houses, and the construction of new factories, schools, shops, offices or any other buildings for which work has been licensed; it also presumably includes the "black market" operations to which Ministers have referred. The Prime Minister mentioned on February 27 that 190 new factory schemes had been licensed for the special areas and that 110 of these were "built or building," and presumably part of the labour on these schemes is included in "Other Building and Civil Engineering Work."

The very low figure for civilian labour on sites needs to be considered together with the fact that German prisoners of war engaged on this work had reached 23,920 in number by January.

It is perhaps interesting to analyse the distribution of the increase in the effective operative labour force between July, 1945, and January, 1946. If we equate the increase of the total labour force (+165,400) with 100, we may then see what percentage of this increase has been taken up by the various programmes.

TABLE VI

Analysis of the Increase in the Effective Operative Labour Force and How it was Distributed—July, 1945—January, 1946

	Amount of Increase		Percentage share of the increase
New Housing—			
Permanent	30,250 (18 per cent.)		
Temporary	22,300 (14 per cent.)		
Sites	5,200 (3 per cent.)		
		57,750	35
Other Housing		29,750	18
Other Work		77,900	47
Total		165,400	100

Thus 47 per cent. of the increase in the labour force was taken up by "Other Work," 35 per cent. by New Housing Work, and 18 per cent. by "Other Housing" work (repairs, conversions, etc.).

RATE OF ABSORPTION OF LABOUR

While new housing has not had a very large percentage share of the absolute increase in the amount of labour available, it must not be forgotten that the rate at which labour can be absorbed on to any expanding programme must partly depend on the size of the labour force already there. It is much easier, for instance, to expand an existing labour force on an existing programme by 20,000 if there are 500,000 already on the programme than if, say, only 1,000 are already on the programme. In the first case, all that is required is to man up jobs by an extra 4 per cent., and complete the programme more quickly (provided, of course, that the jobs are not already over-manned). In the second case, plans have to be laid, sites found, contractors engaged, etc., so that the 2,000 per cent. expansion can take place. In judging the labour position it is as well, therefore, to look at the rate of build up. In percentage terms labour on permanent housing has increased very much faster than the increase in the total labour force. The total labour force has increased (July-January) by 32 per cent.; labour on permanent new housing by 720 per cent.

If the present trend continued, new permanent housing would catch up the total labour force before the end of the year—that is, new housing would then absorb all the effective labour force, despite the fact that at present it is a very small proportion of it. In other words, it is quite certain that the present rate of increase in labour going on to new housing cannot be kept up; the curve will flatten out. But it is not desirable that it should do so until all the men needed for the new housing programme (possibly 350,000 or 400,000) have been absorbed.

OUTPUT AND PRODUCTIVITY

The statistics given do not include any precise measurement of output per man over any period, and it may well be imagined that direct measures of this output might be difficult to provide. But it may be of interest to see if any rough and ready indication of output may not be derived from the returns.

OUTPUT ON PERMANENT HOUSING

For instance, we know from Table III above that something like 2,805 (1,248 + 1,557) houses were completed in Great Britain in six months. Work on some of these may, of course, have begun before July, but, ignoring this, for measuring output all we have to add is the work done on the erection of houses now under construction. These were estimated in round numbers at 33,000. No information is given of the average state of completion of these houses, but since this is a period of build-up of a programme, it is a reasonable guess that they are not more (on the average) than between ¼ and ½ finished. Taking the lower figure, the total "work done" measured in units of houses is thus 2,800 + 8,250 houses, equivalent in working time to building 11,050 complete houses.

The next point is to consider the number of man-months (or man-hours) of labour taken to achieve this result. We may take the 4,200 labour employed on permanent houses given for July, 1945, and the 34,450 for January. These figures presumably include the labour on houses built privately under licence in so far as this is known to the Government Departments. Thus we can arrive at an estimate of some 115,000* man-months on permanent housing. If it is correct to relate this labour-time to the 11,000 "house-equivalents" produced, then the rate of output is very nearly 0.1 houses produced per man-month, or 1.2 houses per man-year, and this output compares quite favourably with output per head before the war. It works out at 1,900 man-hours to a house.

As already mentioned, however, it is not perfectly clear from the official statement whether all labour on work done under licence is included in the labour total. Clarification on this point would be very welcome. The only conclusion that can be safely drawn is that at present there is no published statistical evidence of the serious falling off in output of labour, which is sometimes blamed for delays in the housing programme, and for the high cost of houses. The whole picture is, of course, different if the labour figures relate to the Local Authority schemes only.

OUTPUT ON TEMPORARY HOUSING

It is very much more difficult to estimate the output on temporary houses from the figures given. 11,036 houses have been finished in the period considered, but some of these (and in this case a possibly significant number had been started) before July, 1945. 15,546 temporary houses are in course of erection, and 22,627 are being slabbed. Supposing that one guesses that the first of these groups are about half-finished on the average, and the second group (houses being slabbed) are about one-quarter finished on the average, then work done in six months is equivalent to 22,000 to 24,000 complete temporary houses, or something of that order of magnitude. The labour force to do this work amounted to approximately 154,000 man-months in all.

This gives an output per man-month of the order of 0.15 houses. In other words, if the assumptions made are anywhere near correct, about 50 per cent. more temporary houses than permanent houses are being produced per man-hour.

OUTPUT ON BOMB DAMAGE REPAIR

As already observed, war damage repairs to houses provided new dwellings at an average rate of 7,000 dwellings per month. On the average, some 200,000 men were employed under this heading, but the figures are not comparable, since some of the 200,000 were no doubt engaged on other items of the London repairs programme. If it is assumed that about half of this labour force was mainly engaged on the repair of unoccupied dwellings, then the rate was 0.07 dwellings finished per man-month.

Since the figure is based on an unsubstantiated assumption, any conclusion must be necessarily very tentative, until more information is given. It would appear, however, if the figure is only approximately correct, that it takes rather more labour to provide a dwelling by repair than by building a new one. The only way by which it can be estimated that much less labour per house was needed to provide dwellings by repairs than by building new houses is by assuming that considerably less than 70,000 men were engaged on the repair of unoccupied premises.

SITES ACQUIRED AND DEVELOPED

Permanent Housing Sites: The cumulative figure of sites for which development has been completed is 69,356 for Great Britain. In addition, 82,484 sites in England and Wales are classified as "development to be concurrent with erection of dwellings." There thus seems to be a large stock of developed sites in relation to the permanent house programme now developing.

The most significant figure to look at is the number of sites on which development is completed in each month (or the site otherwise made available for erection work to begin), since this monthly rate must always be well ahead of the planned rate at which erection work is to begin. For England and Wales the figure was 6,397 sites on which development was completed in the month of January, and an additional 13,639 sites became available for development concurrent with house erection. This seems to be a reasonably high figure in relation to the programme. The corresponding figure is not given for Scotland, owing to the perplexing habit of the two Health Departments of presenting their statistics on slightly different bases.

Temporary Housing Sites: Site development appears to be only slightly ahead of the slabbing in England and Wales. The cumulative figure of sites developed was 67,630, and of slabbing work begun 61,272, leaving a stock of sites awaiting slabbing of only 6,358. In January, moreover, only 5,124 sites were completed, while slabbing began on 6,034, so that the stock of sites was being used up. Since the target of temporary housing yet to be done is still substantial, it would look as though the rate at which temporary sites are developed would need to be stepped up, unless ready made sites with full development are available.

There seems to be a bigger proportionate margin of developed sites in Scotland in relation to sites needed for slabbing.

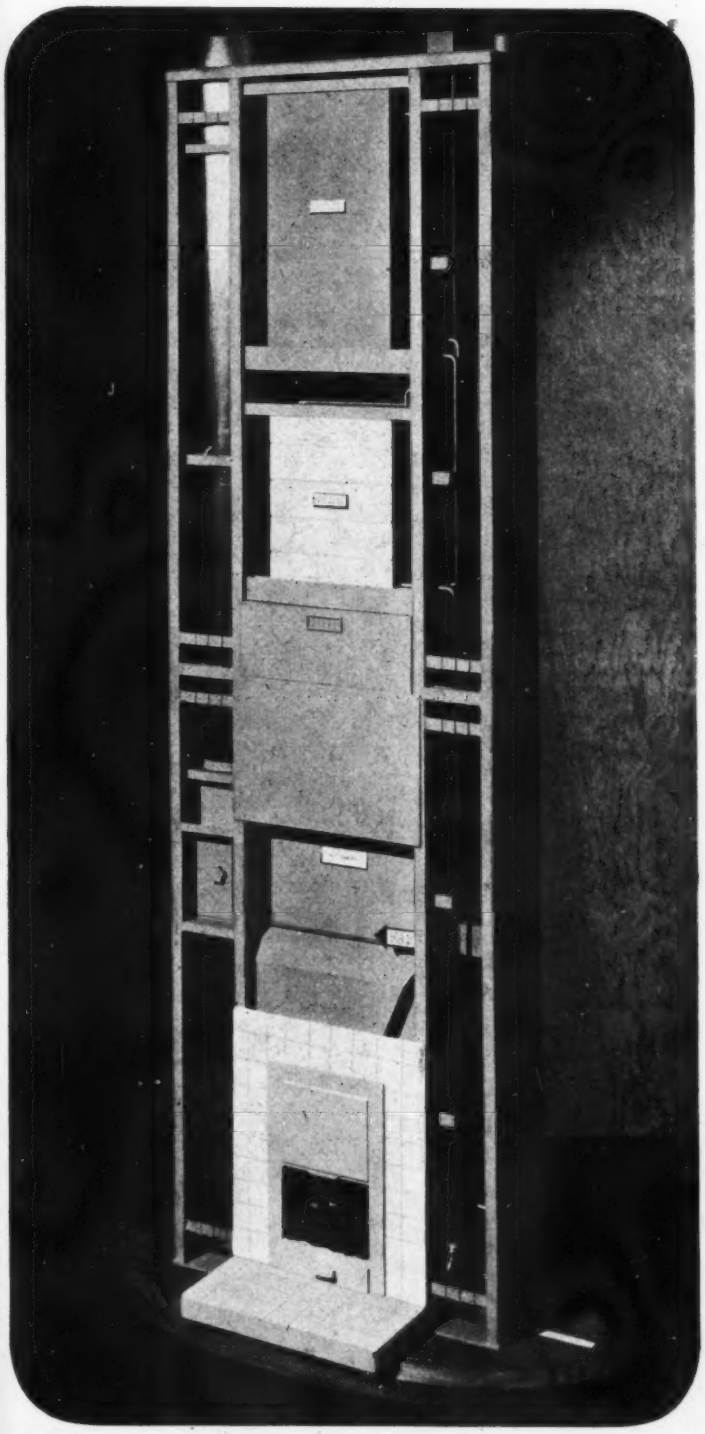
MATERIALS

Figures have been published of the production of materials each month since January, 1945 (Table 65 of the Statistical Digest). These figures convey very little, without either some statement of the requirements, or some indication of consumption and of stocks.

Output of materials is not advancing at a percentage in any way comparable with the percentage increase in labour on housing; beyond that, very little comment at present is possible.

* The formula is $(4{,}200 \times 6) + \frac{1}{2}(34{,}450 - 4{,}200) \times 6$, which gives 115,950. This should be reduced slightly to allow for the more rapid build-up from October.

ALL-PURPOSE SERVICE UNIT FOR SMALL TWO-STOREYED DWELLINGS



Model of the Unit on the living-room side.

DEVELOPED BY THE BUILDING COMPONENT PRODUCERS ASSOCIATION

GENERAL—This All-purpose Service Unit, which is now in production, has been developed by the Building Component Producers Association in conjunction with the British Coal Utilisation Research Association—in accordance with the standards required by BCURA, Women's Advisory Committee on Solid Fuel, British Standards Institution and Ministry of Health and other requirements. The ASU has been designed specifically for the small two-storey house and replaces three appliances, *i.e.*, the living room fire, the kitchen range and the boiler. In addition, it convects warm air to the bedrooms providing a background heat and so obviating the need for other than auxiliary electric or gas fires in these rooms.

The Firegrate: **This has an intake of air from which the oxygen is utilised, giving an increased efficiency to any fuel used. The fire will burn any fuel and heats a specially filled space around the oven; this hot air method of heating the oven avoids frequent cleaning since no part gets dirty or sooty and, shut-down, it will stay alight for 12 hours.**

Cooking: **The hot plate oven and boiler are controlled on the kitchen side and when the living room fire is closed the appliance is turned into an economical cooker.**

Hot Water: **Incorporated in the appliance is a hot water boiler with a short insulated connection to a 40-gallon insulated hot water storage tank, fed in turn by a 50-gallon cold water storage tank.**

Plumbing: **The efficiency of the system lies in the fact that the component parts of the Unit are complementary to each other; this is enhanced by the economy**

in plumbing and the fear of frozen pipes is obviated by all plumbings being internal. The soil pipe is optional; within the unit it limits planning to some 20 different floor plans, but outside the unit leaves planning quite free.

Convected Warm Air: This is introduced by ducting fresh air through the external wall, under the floor through the plumbing duct; thence it circulates round the adaptor flue and heat exchanger and rises to the hot air chamber into the bedroom and bathroom by controlled vents. In summer this hot air can be released into the duct, which ventilates the kitchen and cooking smells can be taken into the roof space.

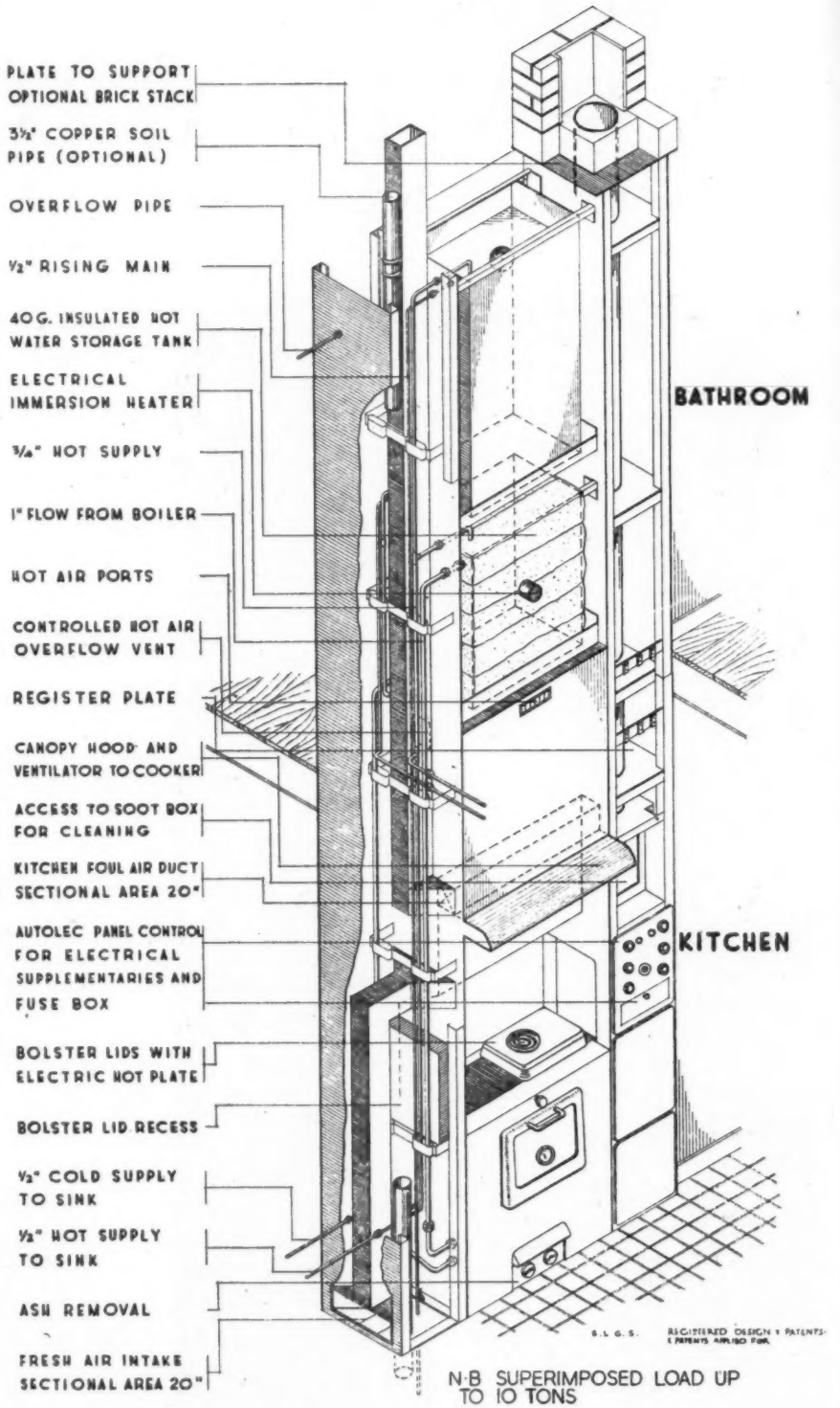
Auxiliary Services: Where auxiliary fuel is required and obtainable electrical supplementaries are provided for, such as hot plates, griller radiant in oven and power plugs for kettle, iron, etc., and immersion heater in the hot water tank. These elements are controlled by an electric panel (Autolec), which has Simmerstat switches giving variable temperatures from simmering point upwards and any degree of heat can be obtained up to boiling point, thereby saving electricity. This Autolec panel contains a fuse box with each fuse named.

Electric Light and Power: Tree wiring is provided for electric lighting and is taken to plug points off which lighting points and power plugs can be adapted.

Cleaning and Sweeping: This whole arrangement reduces smoke and soot to a minimum. Access to the soot box for cleaning is in the kitchen and such little soot as remains can be swept down into the firegrate and burnt.

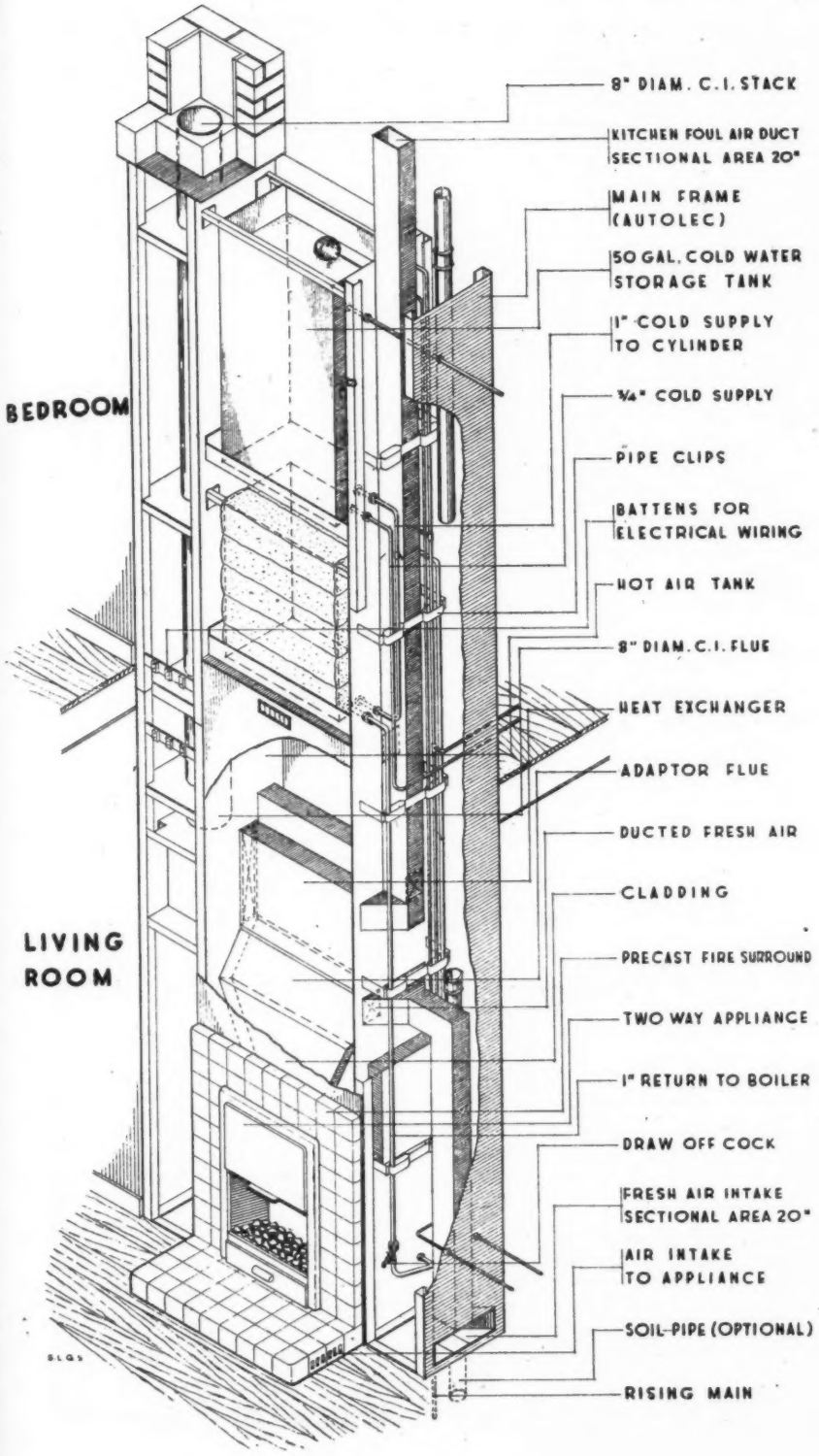
Frame: This is made of light gauge sheet metal, 1 ft. 6 in. by 5 ft. 3 in. by 17 ft. 0 in. high. The plumbing is copper throughout, being assembled in a factory and fixed to the inner sheet and held into position by clips. The storage tanks are assembled on to the unit as is the smoke stack, heat exchanger and ducts, etc., enabling the whole unit to be transported to site and erected. When the house is complete the distributor brings along and places in position the two-way appliance and Autolec panel. The cladding of composition board (detachable for inspection) is then placed in position and the ASU is ready.

SUMMARY—The following advantages of the Unit are claimed: 1. It provides a complete house service in a single unit comprising



KITCHEN AND BATHROOM SIDE OF UNIT

ALL - PURPOSE SERVICE UNIT



LIVING ROOM AND BEDROOM SIDE OF UNIT

space heating, cooking facilities, water heating, plumbing, water storage, drainage (optional), electric mains distribution and auxiliaries.

2. The single heating element provides space heating for 1,500 cu. ft. (radiant) and background heating for 4,000 cu. ft. (convected), 40-gallon hot water service at 140 deg. F., and heat for 2 ft. cube oven and large hotplate—all to BSI standards and operable on 2 cwt. of bituminous coal per week.

3. It is £20 cheaper than the cost of any traditional methods employing a combination of appliances which comply with the minimum requirements of the Ministry of Health, *i.e.*, £105 as compared to £125.

4. £105 represents approximately 12 per cent. of the present total costs of a 900 square foot house.

5. It saves at least 160 site man hours.

6. It requires only 10 man hours to fix complete on site and no special plant or gear is needed.

7. It involves 60 per cent. engineering labour, half of which can be semi-skilled or female.

8. It saves 20 per cent. man hours over all nationally.

9. It solves foundry and vitreous enamelling bottleneck.

COST—*A.S.U. Minimus:* Providing a complete house warming, cooking and hot water installation. Suitable for rural and other areas where supplementary electricity is either not available or not desired. This unit has a bituminous coal consumption of 2 cwt. only (winter months), saving at least £10 p.a. over any comparable installation. Cost—£105.0.0. The basic unit A.S.U. Minimus is adaptable. Two examples of adapted models are as follows:—

A.S.U. Minor: Providing A.S.U Minimus, plus electric wiring, one hot plate, immersion heater and power plug. £125.0.0.

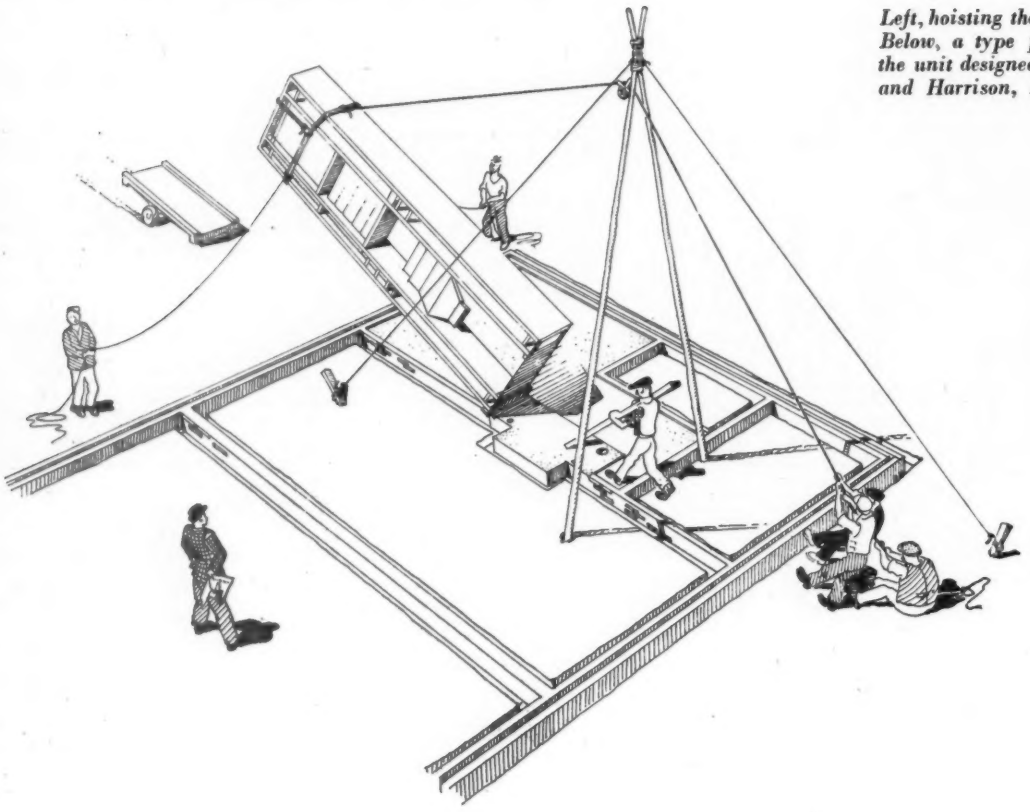
A.S.U. Major: Providing full electrical supplementaries, giving complete alternative cooking facilities with Autolec control for current saving. Operated on 20 to 25 units of electricity for topping up. £150.0.0.

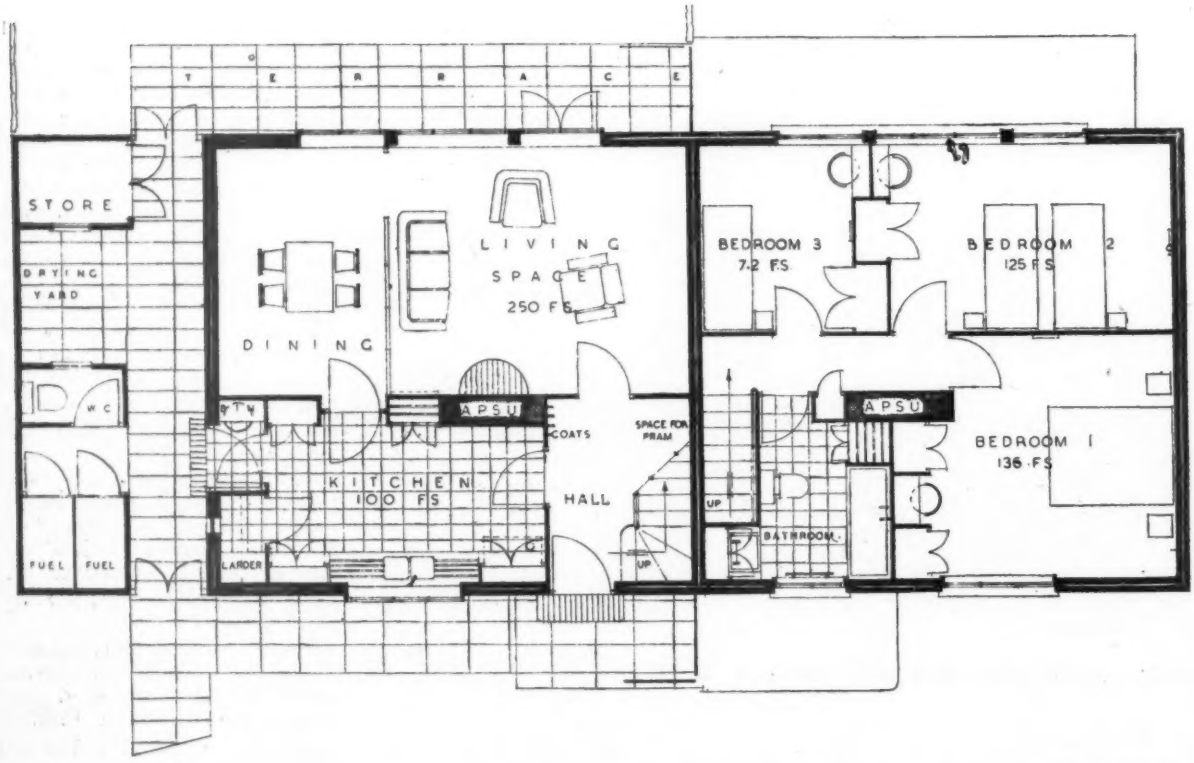
Additional Services: It is proposed if demand warrants, to provide other desirable mechanical services within the Basic Unit.

Connecting Up: £2 (12 man-hours) should be allowed in all cases for assistance in getting in, connecting up, etc.

BY THE BUILDING COMPONENT PRODUCERS ASSOCIATION

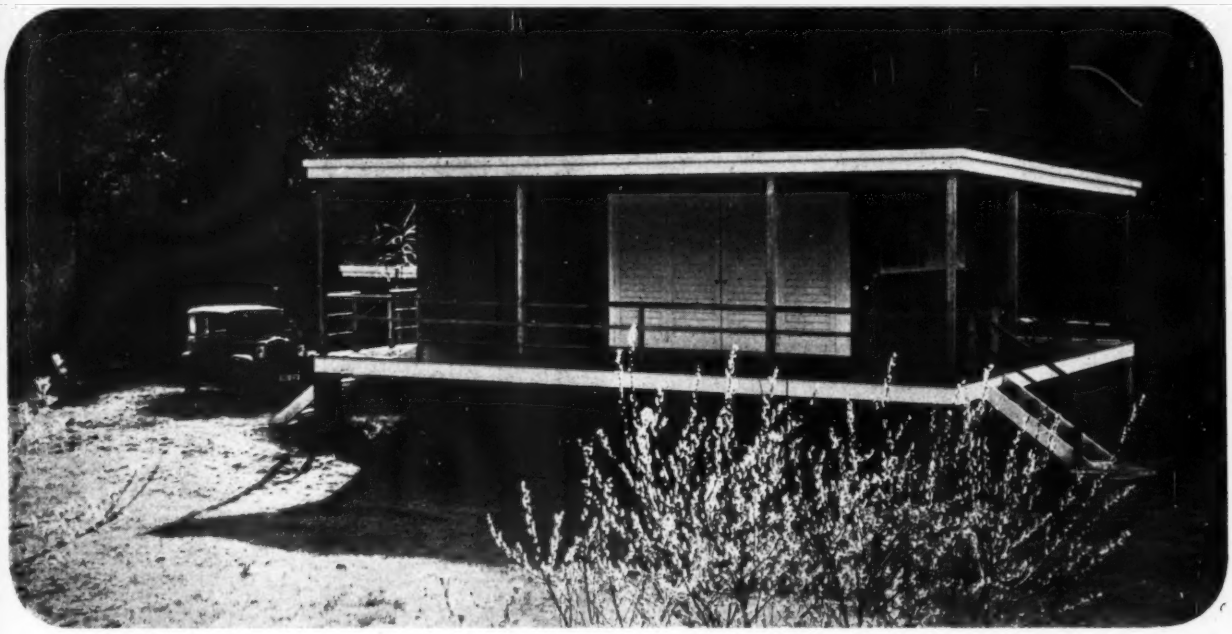
Left, hoisting the unit into position. Below, a type plan incorporating the unit designed by Messrs. Cooke and Harrison, F.R.I.B.A.





GROUND FLOOR **FIRST FLOOR** [Scale: ⅛" = 1' 0"]

ALL - PURPOSE SERVICE UNIT

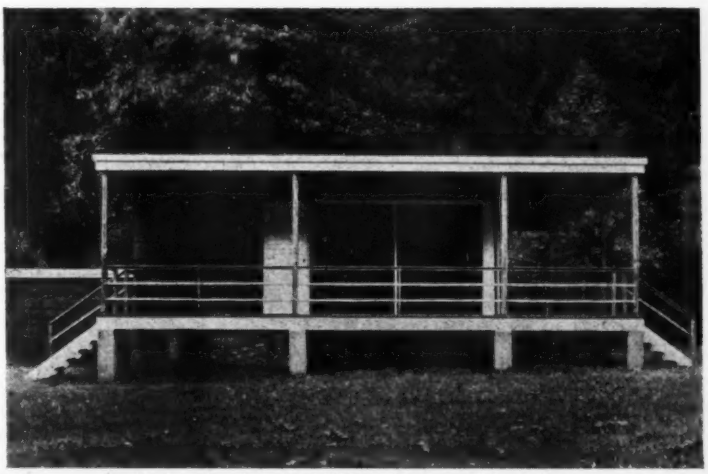


WEEK-END HOUSE

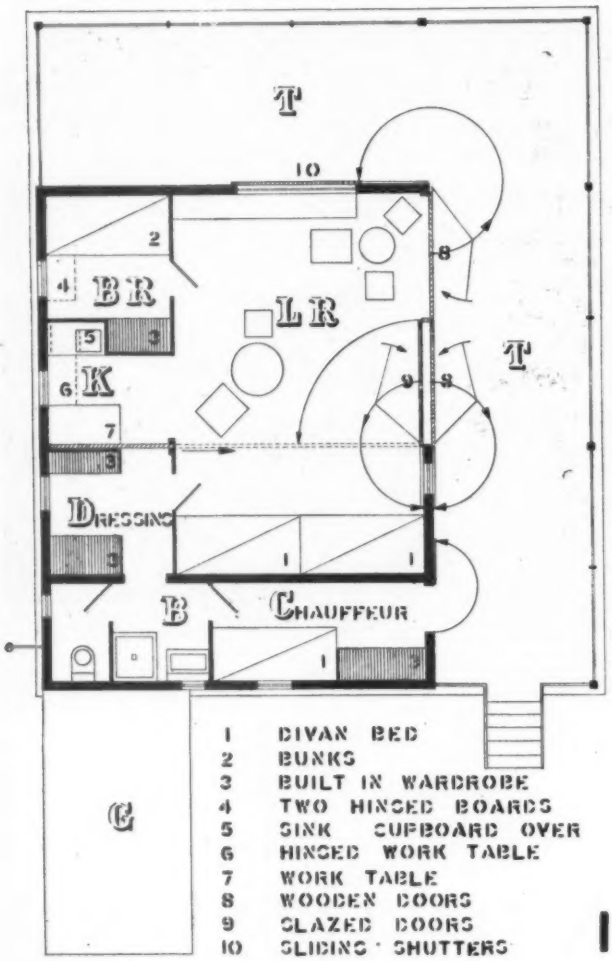
IN MORAVIA, CZECHO-SLOVAKIA

DESIGNED BY JACQUES GROAG

Though this bungalow was built before the war, it is of particular contemporary interest owing to its ingenious and compact plan. The main feature of the plan is the large folding door in four sections to the living room window. This can be completely closed with wooden shutters when the owners are away, or at night time; during good weather the whole can be thrown open, and during bad weather half can be closed with wooden shutters while the other half is closed with glazed doors folding inwards. These glazed doors can also be folded into the room to close off part of the living room and so form a bedroom at night; the movable wall is completed by a sliding screen. The smaller side windows can be covered with sliding wood shutters. The bungalow is constructed of lapped weather boarding on a wooden frame, the interior facing being of $\frac{1}{4}$-in. plywood. Insulation is of woodwool slabs fixed within the wall, thus providing two air spaces. The weather boarding is backed with a layer of tarred felt.



Top, a general view showing the folding shutters of the living room window closed. Below, the main elevation with the shutters folded back.



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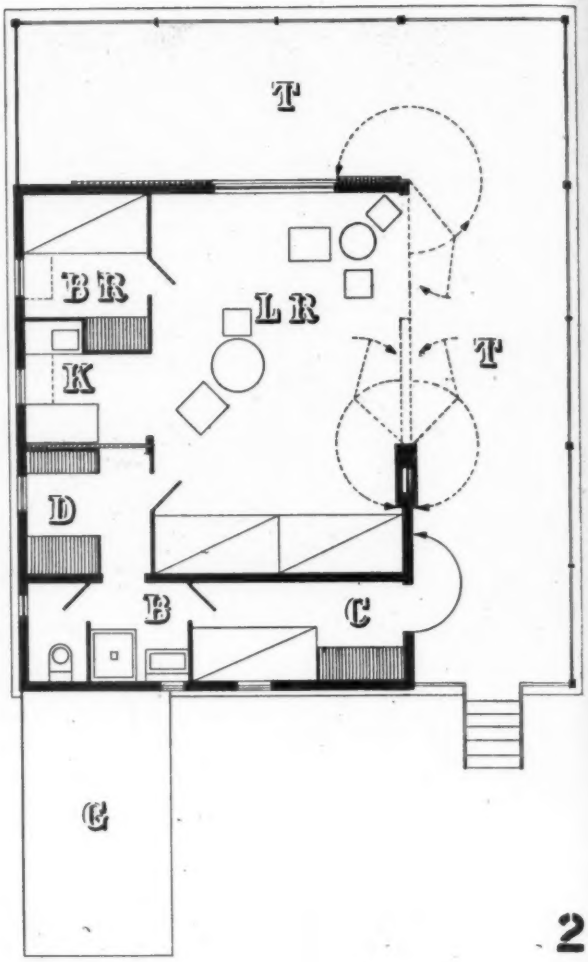

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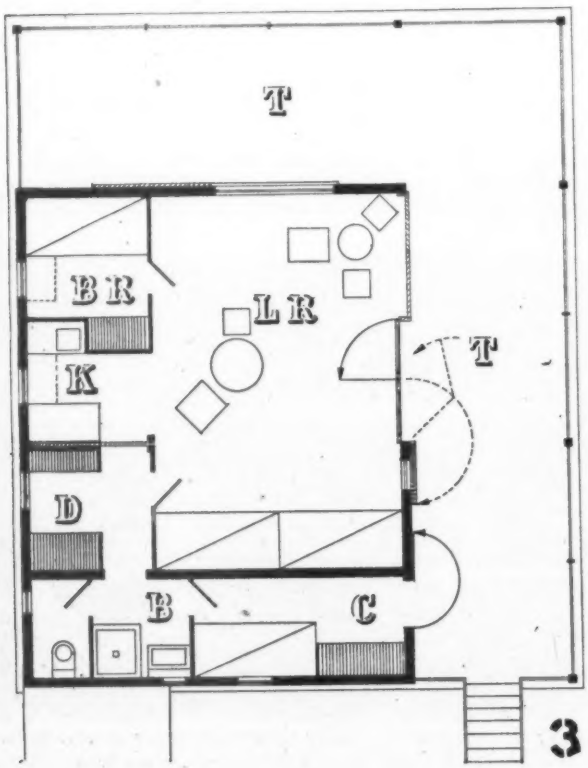

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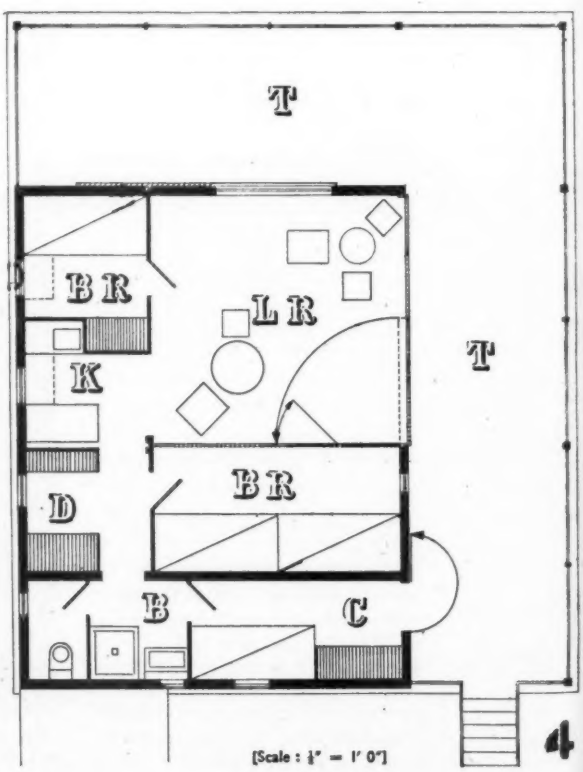
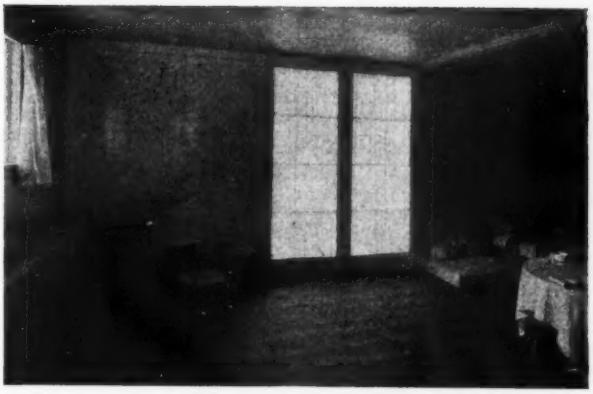
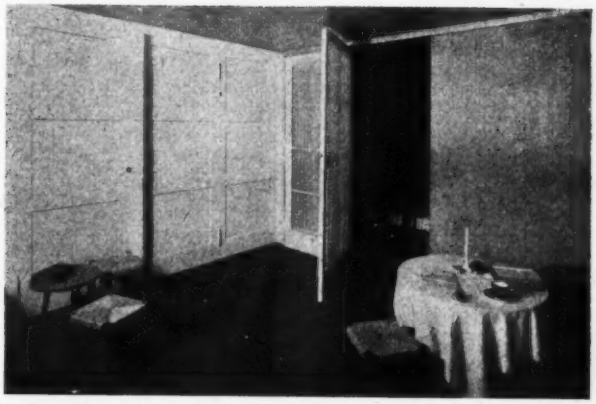


[Scale : ¼" = 1' 0"]

4

On facing page, plans showing the different arrangements of the folding shutters and glazed doors. Above, the living room with the shutters thrown open during fine weather. Right top, the living room with half the shutters closed, the rest of the opening being filled with the glazed folding doors during bad weather. Right below, the arrangement at night, with all the wooden shutters closed and the glazed folding doors folded back to enclose part of the living room as a bedroom ; the bedroom wall is completed by a sliding panel. Below, view from the terrace on to the brook at the rear.





WEEK-END HOUSE IN MORAVIA

D

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.

PHYSICAL PLANNING

2432 **Garden Cities**

GARDEN CITIES OF TO-MORROW. *Ebenezer Howard. Edited by F. J. Osborn.* (*Faber & Faber*, 1946, 6*s.* 0*d.*) New edition of Ebenezer Howard's book published in 1898 as *To-morrow: A Peaceful Path to Real Reform*, and re-issued with slight revisions in 1902 as *Garden Cities of To-morrow*. Preface by F. J. Osborn including Note on Terminology. Introductory essay on *The Garden City Idea and Modern Planning* by Lewis Mumford. Selected book list of garden city movement and planning literature of historic and current interest.

F. J. Osborn's preface includes a character study of Sir Ebenezer Howard, describes Letchworth and Welwyn Garden City as fulfilments of Howard's essential ideas, and briefly sets the book in its historical perspective.

Lewis Mumford critically discusses Howard's proposals for density in housing. He then shows that Howard's greatness did not lie in the field of technical planning, but that his "prime contribution was to outline the nature of a balanced community and to show what steps were necessary, in an ill-organized and dis-oriented society, to bring it into existence." Howard's idea of a Garden City was "a marriage of town and country" and not "a loose indefinite sprawl of individual houses . . . over the whole landscape." "The Garden City as Howard defined it is not a suburb but the antithesis of a suburb: not a more rural retreat, but a more integrated foundation for an effective urban life."

His ideas became the common property of planners all over the world and influenced the planning of Hilversum, Ernst May's satellite communities in Frankfurt-am-Main, and Wright and Stein's Radburn.

Today, Howard's ideas have become technologically far more feasible than forty or fifty years ago through the development of instantaneous communication and the means for swift transport.

STRUCTURE

2433 **House Construction**

MODERN METHODS OF HOUSE CONSTRUCTION. *Paper read by John W. Laing to the Chartered Surveyor's Institution, December* 3, 1945. (*The Builder, December* 14, 1945, *pp.* 481-484 *and other journals.*) Prefabricated houses dearer than houses built on site. Standard may be higher. Importance of thermal insulation. Comparative value of thermal insulation of various types of walls. Comparison of forms of heating. Alternative methods of construction.

2434 **The Airey House**

THE AIREY PERMANENT PREFABRICATED HOUSE. (*The Builder, December* 14, 1945, *pp.* 478-480, *and other journals.*) Walls composed of precast concrete posts clad by slabs in vibrated concrete.

Four in. by two and a half in. precast concrete posts, one storey high, reinforced by a tube, are erected at 18 in. centres and held in position by the first floor beams. The external cladding, consisting of precast vibrated concrete slabs of weather board section, is then added. The slabs are secured to the posts by means of copper wire ties connected to copper hooks, cast in the backs of the slabs. The internal lining is plasterboard or similar material. The walls of the upper storey are similar. The posts of the upper storey are connected to the corresponding posts of the lower storey by projecting dowel tubes which fit inside the reinforcing tubes of the posts of the lower storey. Timber floor and roof joists or light lattice steel joists may be used. The planning is flexible within the 18 in. module. The structure is designed with a flat roof, but can be adapted to take a pitched roof.

2435 **Stone Construction**

A NEW TECHNIQUE OF STONE CONSTRUCTION. *Experimental Houses at Pollock, Glasgow.* (*The Builder, December* 14, 1945, *pp.* 476-7.) New method of masonry construction. Hand labour reduced by standardization of sizes and use of machines.

The cost of building in stone does not lie so much in the price of the actual material as in the labour involved. The Scottish Freestone Quarry Masters' Association has adopted a suggestion made by Glasgow's Director of Housing, Mr. Ronald Bradbury, for a new method of construction which, it is expected, will be the cheapest possible method of using stone for house building. An experiment on a pair of houses at the Pollock Estate of Glasgow Corporation has proved very successful, although the stone front of a house, using this cheapest method, will still be dearer than a brick front.

All the stones used are of unit size, 13 in. wide by 18¾ in. high, so as to course with the brick backing. Stones can be single units or up to five units in breadth and one or two units high. The vertical joints are straight, giving the finished wall the appearance of a chequer board. Where a stone is more than one unit wide or deep, a false joint is cut mechanically into the surface of the stone so as to keep the pattern regular. This standardisation reduces the wastage of stone material to a minimum and eliminates hand labour since the whole of the work is carried out by machines. Doors and windows are surrounded by precast concrete, which can be made with coloured cement. The walls are built in two leaves, the outer leaf consisting of the stone standardised units 5 in. thick, the inner leaf of normal 4½ in. brick.

2436 **The Keeland House**

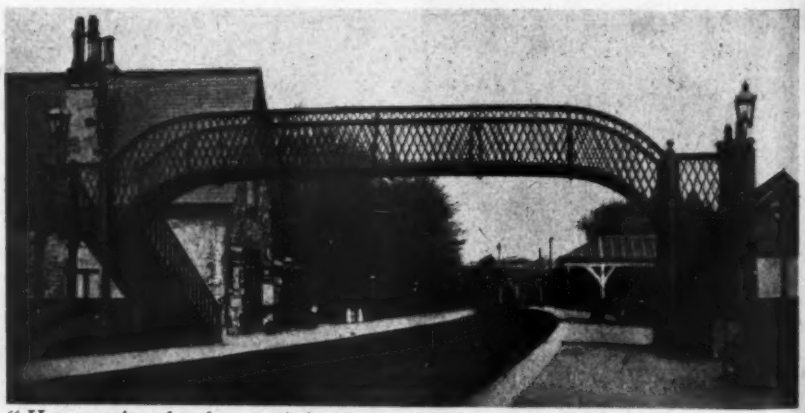
THE KEELAND SYSTEM OF HOUSE CONSTRUCTION. (*The Builder, December* 28, 1945, *p.* 522.) Post and panel system in Cheecol lightweight concrete.

The foundation slab is laid by tipping the coarse aggregate direct from lorries and raking it to the desired thickness. Grout containing Cheecol is then poured into the aggregate and the surface is tamped smooth. The walls consist of precast posts and panels in Cheecol light weight concrete.

MATERIALS

2437 **Cast Iron**

CAST IRON IN BUILDING. *Richard Sheppard. With Introduction by J. G. Pearce.* (*George Allen and Unwin*, 7*s.* 6*d.*) Early building uses of cast iron. Production, varieties and properties of iron. Casting. Finishes and surface treatment. Use in building structure and for building details. Future trends.



"Here cast iron has been used for the principal bones of an independent structure . . . the whole conception of this footbridge has been made possible by the properties of the material." See No. 2437.

BUILDING FOR DAYLIGHT

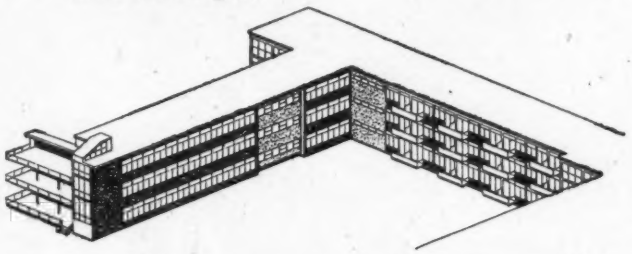
No. 17. FACTS FOR ARCHITECTURAL STUDENTS

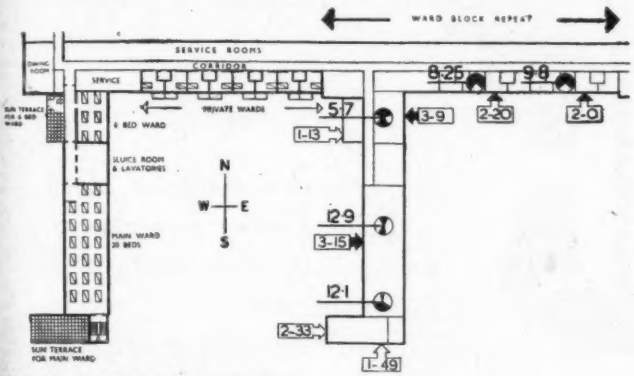
The two examples shown here satisfy daylighting requirements in hospital wards in a city. These can be summarised as follows : (a) Maximum amount of daylight and sunlight particularly in winter ; (b) Windows low enough to allow vision from the ward, while providing privacy between wards ; (c) Cross ventilation essential in public wards ; (d) Provision for beds to be placed in sunshine and open air while under cover and as near as possible to the wards. The figures for the duration of sunlight are based on the Burnett system of calculation. Calculations have been made of the possible hours of sunlight, which are reduced in accordance with ratios, varying for the time of year to give the probable hours of sunlight in December, March, September and June. These figures are then averaged to give the probable hours of sunlight for each day of the year. The figures for the sun terraces appear low in comparison to those for the wards. This is because in the case of the terraces the sunlight has been calculated at a fixed point to show the number of hours during which a patient would be likely to be in full sunlight. In the wards the number of hours during which there would be sunlight somewhere in the room is given.

MULTI-STOREY TYPE. Usual for large hospitals and almost all hospitals in large towns, in order to concentrate the plan and economise in the use of land.

The three major requirements are satisfied as follows :—

(a) and (b) Daylight and Sunlight.
Main Wards.—Facing east and west. Early morning sun is important in the general ward where the day begins for the patient at 6 a.m. The ward is screened from the south sun which would otherwise shine directly into the patients' eyes, while the sill level of the windows in the east wall is low enough for the patients to see out. The windows in the west wall of the large ward start 5 ft. 6 in. up from the floor so that it is impossible to look into one ward from another. The corridor wall of the six-bed ward is in glass blocks.
Private Wards.—Facing due south. As in the large wards the bed is placed parallel with the window wall to avoid glare. In a single bed ward it is possible to arrange the position of the bed to suit the patient and it is not so important therefore to have both east and west light.



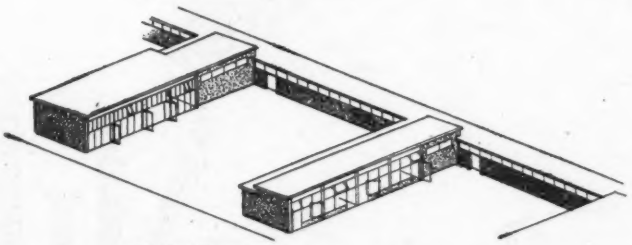


(c) Cross ventilation.
High level windows on the west side allow natural cross-ventilation. In the six-bed ward cross ventilation is arranged over the corridor. The private wards have none.

(d) Sun Terrace.
Main Wards.—Placed at south end of ward to get maximum mid-day and afternoon sun and protected from north and east winds by escape stairs. This position is preferred to common practice of placing balconies along the window wall of the ward because :—

1. Balconies overshadow the ward below.
2. Balconies reduce the vision for those patients unable to be put out.
3. Balconies cannot get so much sunlight as a south-facing terrace unless the ward is faced north and south, which is not desirable.

Six-Bed Wards.—Individual terrace placed on west wall getting unobstructed sun from mid-day onwards.
Private Wards.—Individual balconies from each ward so placed as to reduce to a minimum overshadowing of the bed position in the ward below.



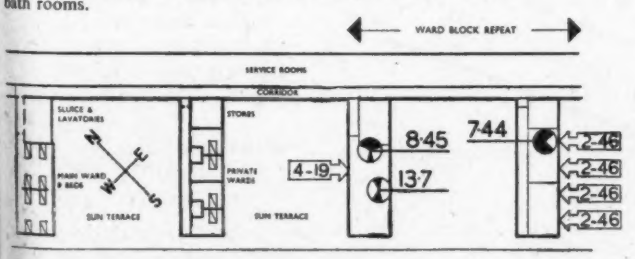
SINGLE-STOREY TYPE. Usual for small and medium sized country hospitals. Commonly called "Pavilion" type.

The three major requirements are satisfied as follows :—

(a) and (b) Daylight and Sunlight.
All Wards.—Facing south-east as morning sun is the most important in the ward. Beds are parallel to the walls to avoid glare and high level windows in large wards on west wall for privacy.

(c) Cross ventilation.
Main Wards.—High level windows on north-west wall. Windows to floor level on south-east side.
Private Wards—If desired by means of clerestorey windows over the corridor. Similar windows to light and ventilate bath rooms.

(d) Sun Terraces.
All Wards.—Placed immediately outside the wards which have sliding or folding windows to floor level. Terraces are sheltered from the north and east and as the blocks run from south-west to north-east there is practically no winter shadowing, *i.e.*, ground which cannot get sunshine on to it at some period of the day at mid-winter is said to be shadowed.



KEY TO DRAWINGS.

- Probable number of hours and minutes during which there is sunlight at some point in the ward.
- Probable number of hours and minutes during which sunlight penetrates to a depth of 4 ft. into the ward.
- Probable Sunlight is on the point indicated but 4 ft. back from edge of balcony.
- Figure gives total daylight factor (d.f.) at point indicated

In the last decades of the eighteenth century and the first half of nineteenth cast iron was universally used as a structural material. It has then been successively supplanted by wrought iron and steel, and has led a somewhat Cinderella-existence in the shadow of these happier sisters. It is commonly thought of as a material not to be taken seriously, but as a substitute material which is cheap and convenient in many cases. This attitude is justified neither by the history of cast iron nor by its present potentialities. In this handy little book Mr. R. Sheppard gives an objective survey of the uses and virtues of this versatile material, which will be very welcome to architects. After the first two chapters about early building uses, and the production varieties and properties of cast iron, the main part of the book is devoted to its contemporary uses and future possibilities.

Victorian designers and manufacturers exploited the material with great inventiveness, but its application in modern building technique is far from being fully explored. Through modern methods of casting and surface finishing cast iron has acquired new properties and offers new possibilities to architects and industrial designers. The chapters about the casting of iron and finishes and surface treatment is therefore of special interest. The two last chapters deal with the structural and semi-structural uses of cast iron, its uses in building components and appliances, and the modern trends in building (panel construction, development of joints). Mr. Sheppard's conclusion is the same as stated in his previous article (see Inf. Centre No. 2103:13.9.45) that "the use of cast iron will not primarily depend upon its treatment at the hands of a few gifted designers but, as always, upon the question of cost. If iron can once again show itself cheaper and more convenient than other materials for those uses to which it is particularly suited, then it could recover a measure of its former popularity." Forty-eight plates illustrate the production and finishes of cast iron, the use of the material in building structure and for building details. In an introduction Mr. Pearce, Director of the British Cast Iron Research Association, gives some very impressive figures of the present output of cast iron and the number of persons employed in the production, and expresses his hope that the use of cast iron for sculptural, decorative and memorial purposes may again be widened.

HEATING and Ventilation

2438 **Air Pollution**

THE LEICESTER AIR POLLUTION SURVEY. *(Report published by HMSO for DSIR.)* Interesting Report of Seven-Year Investigation. No startling conclusions but valuable to Local Authorities.

The Report contains many interesting facts about the smoke menace in our industrial cities. Although there are no startling conclusions, the report will be the guide to municipal authorities attempting to make towns cleaner.

Efforts were being made before the war to reduce air pollution, but the methods adopted were largely guess work for there was so little real knowledge about dirt and smoke in the air. The Survey was therefore undertaken by the Department of Scientific and Industrial Research, to find out all about the air over industrial cities. How much pollution is there in a town and how is it distributed? Where and when is it produced? How much is produced by domestic buildings and how much by industrial undertakings? How far does it spread? By how much does it vary at different times of the year, at weekends, by day and night, and why does it vary? How is it removed? Can it be prevented? Architects, engineers and local authorities can find in the report the answers to these and many kindred questions.

It took seven years to complete the Survey. Various instruments had first to be designed and then three years were spent taking readings from the instruments. A further three years were then spent tabulating the readings to extract every particle of information from them. Finally, the conclusions were drawn and the report written.

The pollution in the air consists of three constituents. There is the relatively coarse solid matter, such as ash, soot and grit, which is usually deposited fairly near its place of origin. This is the dirt that settles on everything inside industrial towns and is that most commonly encountered. Another constituent is very fine solid matter, such as smoke, which remains in the air for a considerable time. This is the material that causes haze over towns and can be seen deposited on walls near ventilators or at cracks in ill-fitting window frames. The third constituent is sulphur dioxide which is given off by impurities in coal and can best be removed by better washing of the coal at the collieries.

Domestic grates are the worst offenders in air polution. A ton of coal burned in a private house produces more than twice as much smoke as the same amount of coal burned in a factory. As smoke abatement by-laws are enforced and inventions for consumption of smoke are applied to factory furnaces, so the proportion of the smoke and dirt in the air made by domestic grates will increase.

The report states that the only cure for air pollution is to forbid the burning of bituminous coal. That would mean a revolution which would throw our industrial and social life into turmoil. It therefore recommends the reduction of smoke stage by by stage. It is worth noting that London produces a smaller proportion of smoke per head of population than other big industrial cities. The reason for this is that so many private houses in London are heated by smokeless fuels. Cardiff is the cleanest town, largely because low-volatile coal is burned in private houses. Stoke is the dirtiest, probably because its industrial concerns produce a disproportionate amount of smoke.

The amount of smoke at the centre of towns was found to be proportional to the square root of the population. As a result it is possible to look at the plans of a whole new town and predict the amount of smoke there will be at the centre.

Although Leicester is surrounded by a broad agricultural belt, between ten and forty per cent. of the total smoke pollution at the centre of Leicester comes from other industrial areas. In different directions of wind, smoke and sulphur dioxide were identified as coming from London, Birmingham, Lancashire and Staffordshire and the West Riding of Yorkshire. This shows that smoke abatement will have to be tackled as a national problem as well as in municipalities if it is to be properly overcome.

As little as ½ gram of smoke per cubic metre of air is sufficient to blot out vision. This means that on an average day in winter in Leicester visibility is limited by smoke alone to less than 1,300 yards, irrespective of the effect of fog or rain droplets. On the smokiest days its distance is reduced to 200 yards. The bad effect this must have on air transport is easily seen and is an added incentive to mastering the problem.

An instrument for measuring the ultra-violet rays received was specially devised for the survey. The beneficial effect of ultra-violet radiance on health is now generally recognised and it was found that at least 30 per cent. was cut out by smoke during the winter months.

Wind does very little to reduce the concentration of pollution in the air over a town. It was found that in Leicester the highest concentration was only moved about half a mile by a strong wind. Turbulence is the greatest factor in dispersion, for this causes the smoke to mix with the clean air upwards and downwards as well as side to side.

A smokeless area in the centre of Manchester has been suggested, by the forbidding of any smoking chimneys over a square mile. Tests on this subject were made in Hyde Park. Such a project would be useful as a start in the reduction of smoke but would have to be widely extended to have results noticeable by the ordinary man. The total pollution would be reduced but not by any large amount.

Much has already been done to limit the omission of smoke from industrial chimneys by means of by-laws and smoke inspectors of local authorities. A war invention for preventing smoke from funnels of ships in convoy can also be applied to factories and has the added advantage of lessening fuel consumption. The main problem is to change over in domestic fires to smokeless fuels such as anthracite or other low-volatile coals, to coke, electricity or gas.

A useful development suggested in the report is smoke-forecasting. If warning were given of impending high concentrations of smoke in urban areas, they would be of benefit to all sections of the community. Housewives would welcome such a warning for it would indicate that it was not a day suitable for washing clothes.

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.*

2439 **Lightweight Concrete**

Q *Can you put me in touch with the patentees of Aerated Concrete? Also, what mineralizing agent do you recommend for the treatment of sawdust in lightweight concrete?*

A (1) The first producers of Aerated Concrete were:—

Aerocrete Units (Northern),
Waterworks Road,
Sunderland,

but this firm is no longer in production. Alternatives suggested are:

High Duty Alloys,
Buckingham Avenue,
Slough, Bucks.

or

Escor Industries,
Uxbridge.

either of whom may be able to help.

(2) Most sawdusts retard the setting of cement and many, owing to compounds contained in the sawdust, produce very low strengths in the sawdust concrete. Hardwood sawdusts should not be used but even some softwood sawdusts have been found unsuitable.

To make sawdust concrete the usual procedure is as follows:

(1) Calcium Chloride is dissolved in water until the hydrometer registers

8 degrees Baume (7 lb. calcium chloride added to 52 lb. water will give this result).

(2) Ordinary Portland cement is then added and the whole stirred until the reading of 55 degrees Baume is reached (38 lb. of 8 degrees chloride solution and 49 lb. Portland cement will give this reading.)

(3) Sawdust from soft wood, which should be reasonably dry, is then immersed in this solution, care being taken to see that every particle is slurry-coated; it is then taken out and the surface slurry removed either by shaking on a screen or by pressure; it is then ready for moulding into slabs, dowels or other products.

All that has been said with regard to sawdust concrete applies equally to concrete made from wood chips, crushed bark, or a mixture of these materials, with sawdust.

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 economize 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.

ASB

J. D. Bernal

March 6 at 66, Portland Place, W.1. Meeting organized by the Architectural Science Board to hear a paper on THE ORGANIZATION OF BUILDING SCIENCE RESEARCH by Professor J. D. Bernal, M.A., F.R.S.

J. D. Bernal: Research in building in post-war Britain is likely to take on a much wider meaning than it had before the war. Building research is, of course, not new to this country, it has behind it a long record of achievement of the Building Research Station. But the need to make up for the cessation of building during the war and for war destruction, in circumstances in which neither materials nor labour can be expected on a scale adequate to the requirements for building, imposes on research a task both wider and more urgent than has ever existed. The war years, however, have not been wasted. Both in research and construction, but perhaps most of all in organization, architects and scientists have learned lessons which it should be possible to convert almost immediately to meet our present requirements. One of the most valuable steps, to my mind, was the setting up of the Architectural Science Group in 1941, which has since grown into the Architectural Science Board and acquired a definite place on the professional side of architecture. The present organization and the future programme of research in building undertaken by the Ministry of Works and the Ministry of Health is very largely the direct result of the proposals of the Architectural Science Group.

The pre-war concept of building research as a technical matter of the examination of the performance of materials, essentially an extension of routine testing, has been replaced by a much wider concept. Research now includes general sociological and economic studies aimed at formulating in the first place the needs for building in such a way that the right technical problems are presented and then further research and development for solving those problem with full regard to the human and economic aspects of the building industry. Now this is an enormous programme. It was necessarily quite outside the capacities of any voluntary organisation, but even with full Government support it will take a long time before it can be fully implemented. In the meantime there are particularly urgent problems to be solved, pre-eminently in the field of housing, and the immediate question is to find the appropriate priorities so that a still limited number of research workers can achieve those results which can most rapidly be turned to practical advantage. This was the task put before Sir Reginald Stradling when he was appointed Scientific Adviser to the Ministry of Works and for the general consideration of which the Scientific Advisory Committee, of which I have the honour to be chairman, was appointed.

Our first task was to survey the whole field in order to separate out the questions which it was most practicable to tackle at once from the more long-term requirements and to find the best available means for getting answers to these questions. The Committee itself was concerned only with the broad issues; the detailed work has devolved on a number of sub-committees and panels. There has been a broad four-fold division of the work into requirements, materials, structures and construction, building industry. From the start the emphasis had been put on housing rather than building in general, though the organization set up and a good many of the results will be applicable to much more general building problems.

The requirements section is itself divided into two—physiological and functional requirements. Both deal with what the architect traditionally refers to as the commodity of building. But although centuries of tradition lie behind this provision of requirements, it is surprising how little precise information is available. It might be argued, of course, that as people have got used to, or adapted to, buildings as they exist, it would be well enough to accept this fact and look no further. However irritating to the seeker after knowledge, no one would be the worse off. But this argument will not hold in post-war conditions where the actual needs of the situation and the restrictions under which work must be carried out impose necessarily many variations from traditional practices in building. New materials will have to be used on account of scarcities, new methods of construction attempted in order to get buildings up in less time and to save labour. The question of satisfactory performance of houses from the point of view of the occupiers becomes of primary importance and cannot be answered by appeals to tradition. For example, we have the problems of heating and condensation. How are people likely to respond to new types of centrally placed heating units and how is their use likely to affect domestic habits, for instance in the possibility of the use of bed-sitting rooms in a warm house? Or, how are we going to make full use of lighter methods of construction and avoid condensation in or on walls or roof? These questions have, of course, both physiological and sociological bearings. We hope to be able to lay down the conditions of heating, ventilation and general sanitation which will be the best for health. But to do this a great deal of work will be necessary and much of this work cannot be carried out in the laboratory but only under conditions much more closely approximating those in everyday life.

This applies even more forcibly to the functional or social conditions of living. The modern house is becoming a place equipped from the start for carrying out a number of domestic occupations with the minimum of loss of time or discomfort for the occupants. The whole equipment of the house has to be adapted at the same time to its general construction and to the particular needs of the occupants. Here again, once we depart from tradition we shall need a great deal of research on such questions as the optimal heights of sinks, the best ways of placing cupboards and cookers and the proper divisions between the kitchen and the dining room. All these, it may be said, are the concern of the manufacturer or the architect, but we cannot leave them so at present. They need to be co-ordinated if we are to have effectively standardized plant and economic production of equipment on a mass basis.

The second section of the research work of the Ministry is that on building materials. This is the oldest aspect of building research and invaluable work has always been done on the properties of traditional and new building materials at the Building Research Station. Indeed the high position which England holds in fundamental knowledge of such materials as cement and brick is largely due to the work of a small but extremely able band of research workers in that institution. The work, however, has in the past been on a relatively small scale and it has been effectively limited to the study of the performances of materials without adequate powers to consider their production or use. The tendency has been to leave production in the hands of manufacturers, who for the most part have made very little use of scientific research, and not to interfere with the competition between these manufacturers in the utilization of their products. With the great demand for new and cheap materials and with the scarcities of existing materials, research is bound to tend more and more to lead to development and not merely testing for acceptance or rejection. The section for research on materials is therefore concerning itself with the whole range of problems from production, through performance, to use, with a particular eye for the rapid development of promising new materials, having in mind economics of production as much as physical properties.

Materials will not be favoured just because they are new. Everything must and will be done to improve the properties and extend the range of use of existing materials, and no material will be seriously considered unless it is economic to produce and there are available adequate materials in this country for its manufacture. At the moment the greatest priority is for covering and insulating materials, asbestos board, wallboard, plaster, foam glass and, above all, light-weight concrete. We are well behind other countries, notably Sweden, in the use of light-weight concrete. If such a concrete

can be developed, cheap to make and with sufficient strength and resistance to moisture to be used for external walling or sheeting, it may mark a revolution in building construction in this country.

The third section is concerned with the most architectural side of building research, the theory and calculation of structures. Before materials can be used effectively, it is absolutely necessary to know the mechanical conditions which they are likely to be subjected to in practice. In spite of the work of thousands of engineers and architects, we still are largely ignorant on these questions and are apt to depend on bye-laws which are recognised to be arbitrary, out of date, and to involve large factors of safety due to our own ignorance and laziness. Modern scientific calculation of stresses has been forced on us in connection with aeroplane design. It is now proposed that similar calculation should be made for buildings, using the latest refinements of modern stress theory, and these calculations will need to be checked by appropriately designed experiments and measuring devices. This work will be largely carried out extra-murally in engineering departments of universities and the Building Research Station. Of all the work at present in hand, this should be of the most general value to architects and designers, and it is hoped at the same time that it will be used for refashioning our bye-laws and codes of practice. Here again, the co-operation of the Architectural Science Board will be most valuable, particularly in suggesting structural problems and ways in which the results of the structural calculations can be used in practice.

The fourth section of the research is both the largest and the most immediate in its application. It concerns the whole operation of the building industry and is itself divided into several sections. First comes the work of the Human Efficiency Panel. The existence of such a Panel implies a recognition that it is upon the building worker in the first place that the possibility of a really effective housing drive depends. The work covers the question of selection, training and performance of the various building trades, trying to find the factors accounting for the present apparent low productivity of labour in the building industry, and to devise the most appropriate arrangements of pay, prospects and general conditions of work by which it may be raised. In this they are working with both the representatives of employers and of operatives. This is the first time that any attempt has been made scientifically to deal with the question of human productivity in the Building Industry.

Next to human efficiency is the actual technique of building operations and the mechanical or organizational means by which this can be improved. Building processes, as all architects know, are extremely traditional and the Building Industry has been even slower to adopt modern mechanized production methods than almost any other. There are many practical as well as traditional reasons for this, and the questions of the value of mechanization in building, of the use of power tools and of such devices as rising scaffolding, all need to be examined on their merits and tried out extensively in the field. Already the Ministry has carried out considerable studies on man-power requirements in building for prefabricated houses. This has now been extended to traditional housing, again with full collaboration of employers and unions, and very interesting results have already been obtained. It appears that much of the time saving in certain types of prefabrication is more apparent than real. The labour saved on the site may be more than offset by the comparatively more expensive labour, on account of overheads in the factory. These studies may be of considerable value to architects, and of course point to alterations in design of buildings quite as much as in methods of building. For the first time it will be possible to appreciate quantitatively how expensive are the separate components of a building and what economies are likely to result from simplification of design and from standardization. The more careful organization of site labour, already recognized by contractors as a most important source of economy, and the elimination of lost time through poor flow of materials are also being investigated.

A third section deals with the wider economics of the building industry, analysing its extremely complex structure with a view to proposing organizational and financial improvements. An attempt is being made to assess the real economy in the house of large organizational units and to balance the effect of higher grade direction of more expensive plant against the individual attention that the small man can give to the job.

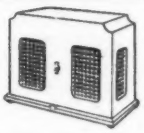
ANNOUNCEMENTS

Mr. Gordon E. Payne, O.B.E., (M.)F.S.I., M.T.P.I., Planning Consultant, has taken Mr. A. Budge Reid, A.R.I.B.A., A.R.I.A.(SCOT.), and Mr. T. F. Lawson, A.R.I.B.A., P.A.S.I., into partnership. The practice will operate under the title of Gordon Payne & Partners, Chartered Architects, Chartered Surveyors and Town Planning Consultants at the present main addresses of 2, King Street and Midland Bank Chambers, Gloucester, and in London and Bristol.

The address of the Building Component Producers Association who have developed the All-purpose Service Unit illustrated on pages 215-218 of this issue is 31-34, High Holborn, W.C.1. HOL. 0936-7.

"Sanitary" Smell

can be the blot on the most carefully planned public building. In spite of thorough ventilation, the air in the corridors carries unpleasant suggestions which are merely advertised when attacked by pungent chemicals. By installing Ozono Air-Conditioning units, the smell is destroyed at the source and the air in public toilets, wash-rooms and corridors is kept odour free. In crowded assembly rooms, also, Ozono units keep the air fresh and free from the oppressive staleness usually associated with confined gatherings.



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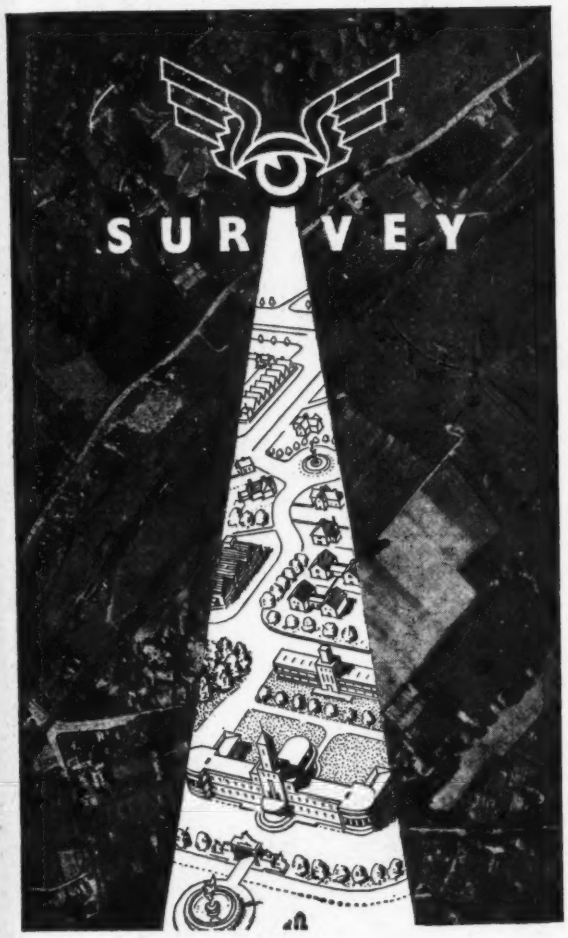

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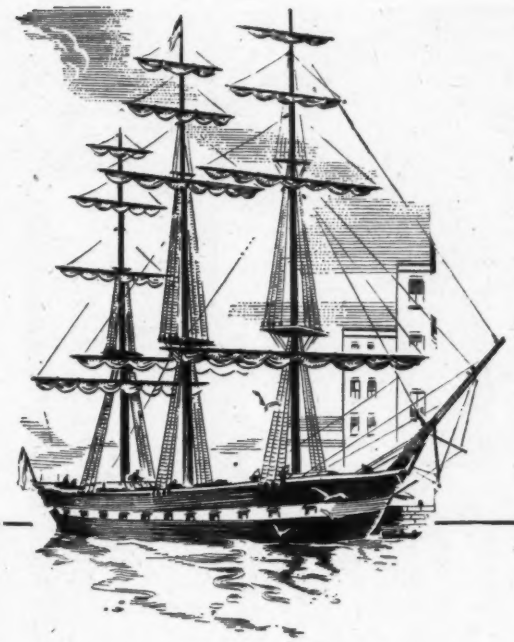

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Timber, that precious lifeblood of England's maritime power, was still one of the vital creative elements in the enormous expansion of British commerce throughout the world—the timber bottoms sailed the oceans of the world taking the flag and the products of Birmingham and Manchester on their civilizing mission.

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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal." War Address: 45 the Avenue, Cheam, Surrey, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," War Address: 45 The Avenue, Cheam, Surrey.

Public and Official Announcements

Six lines or under, 8s.; each additional line, 1s. THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. ADDRESS: 75, EATON PLACE, LONDON, S.W.1. TEL.: SLOANE 5615. 951

COUNTY BOROUGH OF DARLINGTON.

BOROUGH SURVEYOR'S DEPARTMENT—ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant, at a commencing salary of £420 p.a., plus cost-of-living bonus of £59 19s. 3d. p.a.

The appointment will be subject to the provisions of the Local Government Superannuation Act. 1937, and to the conditions of service applicable to the Council's permanent officials.

Preference will be given to candidates who have passed the Associateship Examination of the R.I.B.A.

Applications, endorsed "Architectural Assistant," giving names and addresses of three referees, should be delivered to the undersigned on or before the 23rd March, 1946.

Canvassing, directly or indirectly, will disqualify.

H. HOPKINS,
Town Clerk.

603

ESSEX EDUCATION COMMITTEE.

SOUTH-WEST ESSEX TECHNICAL COLLEGE AND SCHOOL OF ART.

The Governors invite applications for a full-time STUDIO MASTER AND LECTURER in Architectural Design and Interior Decoration.

Holders of the Degree or Diploma of a recognised School of Architecture preferred.

Salary: Burnham scale (London allowance), with increments for professional experience and approved training and graduation.

Applications (no forms), giving full particulars, with copies of recent testimonials, should reach the Clerk of the Governors at the College, Forest Road, Walthamstow, by 2nd April, 1946.

B. E. LAWRENCE,
Chief Education Officer.

County Offices, Chelmsford.
4th March, 1946. 832

Amended Advertisement.

SOMERSET.

COUNTY PLANNING OFFICER.

The Somerset County Council invite applications for this appointment from persons possessing the necessary experience and the full and proper professional and technical qualifications. A sound knowledge of the law relating to planning and ribbon development and practical application of planning principles is essential.

The salary for the appointment will be at a rate not exceeding £1,600 a year, and in fixing the commencing salary regard will be had to the age, qualifications, and ability of the successful applicant. War bonus and travelling and subsistence allowances will be paid as may from time to time be determined by the County Council. The post is superannuable.

The duties will include advising the County Planning Committee on planning matters, and (in consultation with the County Surveyor) on applications received under the Restriction of Ribbon Development Act, and attendance at meetings of the Joint Planning Committees dealing with the preparation of draft Schemes for the County, and at Local Inquiries.

The person appointed will have to devote his whole time to his duties, and will not be permitted to engage in private practice or any other business.

The appointment is subject to passing a medical examination to the satisfaction of the Council, and may be terminated by three months' notice and otherwise held at the pleasure of the County Council.

Applications in sealed envelopes, endorsed "County Planning Officer," accompanied by not more than three recent testimonials (members of H.M. Forces may submit names of not more than three persons to whom reference may be made), must be received by the undersigned not later than 24th April, 1946.

Canvassing will be a disqualification.

HAROLD KING,
Clerk of the County Council.

County Hall, Taunton.
26th February, 1946. 801

WEST MIDLANDS JOINT ELECTRICITY AUTHORITY.

APPOINTMENT OF ARCHITECTURAL DRAUGHTSMAN.

The above-named authority invite applications for the position of Architectural Draughtsman on the permanent staff of the Authority, at a salary of £420 per annum, subject to adjustment for variations in the cost of living.

The appointment will be subject to the Authority's Superannuation Scheme under the Local Government Superannuation Act, 1937, and the selected candidate will have to pass a medical examination.

Experience in the preparation of working drawings, detailed specifications, estimates and quantities is essential.

Possession of an architectural degree or diploma will be an advantage.

Applications, stating age, education, experience, and present occupation, accompanied by copies of three recent testimonials, and endorsed "Architectural Draughtsman," should reach the undersigned not later than the 18th March, 1946.

Canvassing, either directly or indirectly, will disqualify.

H. F. CARPENTER,
Clerk and Manager.

Phoenix Buildings, Dudley Road,
Wolverhampton.
22nd February, 1946. 808

BURGH OF GREENOCK.

APPOINTMENT OF TECHNICAL STAFF TO MASTER OF WORKS DEPARTMENT.

The Corporation of Greenock invite applications for the following positions in the Department of the Master of Works, *viz.*:—

(1) ONE SENIOR ARCHITECTURAL ASSISTANT, at a commencing salary of £355 per annum, rising by annual increments of £15 to £400 per annum, plus war bonus. Applicants must be Registered Architects, and experienced in housing and general architectural work.

(2) ONE JUNIOR ARCHITECTURAL ASSISTANT, at a commencing salary of £220 per annum, rising by annual increments of £15 to £265 per annum, plus war bonus. Applicants must be neat, expeditious draughtsmen. Experience in housing work will be an advantage.

(3) ONE APPRENTICE ARCHITECT, at a commencing salary of £48 per annum, rising by annual increments of £12 to £84 per annum, plus war bonus.

(4) TWO SENIOR ENGINEERING ASSISTANTS, at a commencing salary of £355 per annum, rising by annual increments of £15 to £400 per annum, plus war bonus. Applicants must be Associate Members of either the Institution of Civil Engineers or the Institute of Municipal and County Engineers, and must have extensive experience in highway engineering and sewerage, and in the setting out and measuring of contractor's work.

(5) ONE SENIOR TOWN PLANNING ASSISTANT, at a commencing salary of £355 per annum, rising by annual increments of £15 to £400 per annum, plus war bonus. Applicants must have extensive experience in the preparation of a Town Planning Scheme and of the administration of Interim Development Control, and should have a recognised Town Planning, Engineering or Architectural qualification.

(6) TWO JUNIOR PLANNING ASSISTANTS, at a commencing salary of £220 per annum, rising by annual increments of £15 to £265 per annum, plus war bonus. Applicants must be competent surveyors and levellers, and preference will be given to candidates with previous experience in the preparation of a Town Planning Scheme.

All the above appointments are upon the permanent staff of the Corporation, and are subject to one month's notice on either side. Successful applicants will be required to pass a medical examination and to contribute to the Corporation's Superannuation Fund under the provisions of the Local Government Superannuation (Scotland) Act, 1937.

Applications, endorsed according to vacancy applied for, stating age, qualifications, experience, and accompanied by copies of not more than three recent testimonials, should be forwarded to the undersigned not later than Saturday, 23rd March, 1946.

A. H. GRAY,
Town Clerk.

Municipal Buildings, Greenock.
28th February, 1946. 817

COUNTY BOROUGH OF CROYDON.

CHIEF QUANTITY SURVEYING ASSISTANT.

Applications are invited from qualified persons for the position of Chief Quantity Surveying Assistant, on a scale salary of £480 to £530 per annum, plus bonus, at present £59 16s. The commencing salary will be fixed according to age, qualifications, and experience.

Applicants must be able to prepare bills of quantities and estimates, to measure up and adjust final accounts.

Form of application may be obtained from the Borough Engineer, Town Hall, Croydon, and should be returned to him not later than 25th March, 1946.

E. TABERNER,
Town Clerk.

842

CANTERBURY EDUCATION COMMITTEE SCHOOL OF ART.

DEPARTMENT OF ARCHITECTURE.

Full-time STUDIO MASTER required immediately for work in connection with the Intermediate course. Applicants must be Associates of the R.I.B.A. Previous teaching experience desirable, but not essential. Salary in accordance with Burnham Provincial Technical scale. Initial rate according to previous teaching and/or professional experience.

Application forms obtainable from the Director of Education, Education Office, London Road, Canterbury. 798

BOROUGH OF SWINDON.

ERECTION OF 100 HOUSES—HURST HOUSING ESTATE EXTENSION.

The Corporation of Swindon invite tenders for the erection of 100 Houses, off Beech Avenue, on the extension of the Hurst Housing Estate.

Copies of quantities and forms of tender may be obtained from, and plans and general conditions of contract inspected, at the office of the Borough Surveyor, Civic Offices, Swindon, on payment of a deposit of £5 5s., which will be returned on receipt of a *bona fide* tender and the relevant documents.

Sealed tenders, endorsed "Tender for Houses," must be delivered to the undersigned not later than noon on Friday, the 5th April, 1946.

The Corporation do not bind themselves to accept the lowest or any tender.

D. MURRAY JOHN,
Town Clerk.

Civic Offices, Swindon.
March, 1946. 811

COUNTY BOROUGH OF DERBY.

BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ASSISTANT QUANTITY SURVEYOR, at a commencing salary of £400 per annum, rising by annual increments of £12 10s. to £460 per annum, exclusive of war bonus.

Applicants must be able to prepare bills of quantities, and have had experience in measuring up and settlement of accounts.

The appointment will be subject to the Local Government Superannuation Act, 1937, to the successful candidate passing a medical examination, and to one month's notice on either side.

Applications, stating age, previous experience, and qualifications, accompanied by copies of three recent testimonials, must be delivered at the office of the Acting Borough Architect, Council House, Corporation Street, Derby, not later than first post on Tuesday, 26th March, 1946, endorsed "Assistant Quantity Surveyor."

Canvassing, directly or indirectly, will be a disqualification.

G. ASHTON, M.A.,
Town Clerk.

Market Place, Derby. 810

CITY OF BATH.

Applications are invited for the following appointments in the Architectural Section of the City Engineer's Department:—

(*a*) TEMPORARY ARCHITECTURAL ASSISTANT. Annual salary £415, rising to £460, plus bonus, which is at present £1 3s. weekly.

(*b*) JUNIOR ARCHITECTURAL ASSISTANT. Annual salary £330, rising to £375, plus bonus, which is at present £1 3s. weekly.

Appointment (*b*) is an established post, and subject to the provisions of the Local Government Superannuation Act, 1937.

Candidates should have had experience in housing layouts, house design, and construction. They should be Registered Architects and, for the first appointment, preference will be given to Corporate Members of the R.I.B.A., or to holders of the Diploma of a recognised School of Architecture.

Applications should be delivered to the City Engineer, Guildhall, Bath, on or before 30th March, together with copies of three recent testimonials, and should state age, qualifications, experience, and notice required on termination of present appointment.

Canvassing, directly or indirectly, is prohibited.

J. BASIL OGDEN,
Town Clerk.

Guildhall, Bath.
6th March, 1946. 839

INVESTIGATORS (Temporary) required by a Government Department for listing buildings of historic and architectural interest in rural areas of Northern England, the Midlands, and South Wales. Candidates must be able to date buildings, especially domestic architecture, of the 18th and early 19th centuries. It will be an advantage to possess or be able to drive a car.

Salary ranges: Men, £490-£640 p.a.; women, £392-£512 p.a.

Applications, which must be in writing, stating date of birth, full details of qualifications and experience, including present employment, also Identity and National Service or other registration particulars, and quoting reference No. J.P.(1)411, should be addressed to the Ministry of Labour and National Service, London Appointments Office, 1-6, Tavistock Square, London, W.C.1. 827

BOROUGH OF MALDEN AND COOMBE.

SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment, at a salary of £510 per annum, plus a temporary cost-of-living bonus, at present £59 16s. per annum.

The appointment is terminable by one month's notice in writing on either side, and will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applicants should be members of the Royal Institute of British Architects, and applications, giving particulars of age, experience, present and previous appointments, with salaries, accompanied by copies of not less than two recent testimonials, endorsed "Architectural Assistant," should be delivered to the undersigned not later than Monday, 1st April, 1946.

The Council will provide the successful candidate with housing accommodation if deemed necessary.

Canvassing, directly or indirectly, will be a disqualification.

Candidates, when making application, must disclose in writing to the Town Clerk whether to their knowledge they are related to any member of or the holder of any office under the Council.

HAROLD E. BARRETT,
Town Clerk.

Municipal Offices, New Malden, Surrey.
March, 1946. 840

LONDON COUNTY COUNCIL.

PARKS DEPARTMENT.

Vacancies for Assistants, qualified in landscape design and construction :—

(1) SENIOR ASSISTANT. Salary £500—£25—£650 per annum (cost of living addition, £90 per annum men, women £72, rising to £76).

(2) ASSISTANT in 1st class (*a*), salary £380—£20—£500 per annum (cost of living addition, men £85, rising to £90 per annum; women, £72).

The positions are subject to the Council's Superannuation and Provident Fund, and will be temporary in the first instance, but the successful candidates will be eligible for consideration at a later date for appointment to the permanent staff. Applicants should possess suitable professional qualifications or hold an appropriate diploma. Application form from Chief Officer of the Parks Department, The County Hall, Westminster Bridge, S.E.1. (enclose stamped addressed envelope), to be returned by 12th April, 1946. Canvassing disqualifies. 846

COUNTY BOROUGH OF BLACKBURN.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments :—

(*a*) SENIOR ARCHITECTURAL ASSISTANT. Salary £555-£600 (by two increments of £20 and £25).

(*b*) TWO ARCHITECTURAL ASSISTANTS. Salary £460-£510 (by three increments of £15, £15 and £20).

(*c*) QUANTITY SURVEYOR. Salary £460-£510 (by three increments of £15, £15 and £20).

(*d*) ENGINEERING ASSISTANT. Salary £490-£510 (by one increment of £20).

The salary for each of the posts will also be subject to the addition of a cost-of-living bonus, at present amounting to £59 16s. per annum.

Applicants for the Architectural appointments (*a*) and (*b*) must be Registered Architects, and preference will be given to Associate Members of the Royal Institute of British Architects. Those for the post of Senior Architectural Assistant (*a*) must have considerable experience in the design and construction of schools and other educational buildings. Those for the two posts of Architectural Assistants (*b*) must have good general experience in the design and construction of public and municipal buildings. Those for the post of Quantity Surveyor (*c*) must have experience in the preparation of bills of quantities, specifications, estimates, and the settlement of final accounts. Preference will be given to Professional Associates of the Chartered Surveyors' Institution. Those for the post of Engineering Assistant (*d*) must have experience in the design and construction of drainage and sewage disposal works, in addition to general municipal engineering works, and must be Corporate Members of the Institution of Civil Engineers and/or have passed the Testamur Examination of the Institution of Municipal and County Engineers.

The appointments are subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

Applications, endorsed "Senior Architectural Assistant," "Architectural Assistant," "Quantity Surveyor," or "Engineering Assistant," stating age, qualifications, experience, present and past appointments, together with three recent testimonials, should be delivered to the Borough Engineer and Surveyor, Town Hall, Blackburn, not later than the 25th March, 1946.

(Signed) CHARLES S. ROBINSON,
Town Clerk.

Town Hall, Blackburn.
1st March, 1946. 821

COUNTY LONDONDERRY COUNTY COUNCIL.

APPOINTMENTS OF COUNTY SURVEYOR, DEPUTY COUNTY SURVEYOR, AND ASSISTANT SURVEYOR.

The above-named Council invites applications for the following positions :—

(1)) County Surveyor, at a salary of £800 per annum, together with war bonus on the Whitley scale, and an annual allowance of £170 for travelling expenses.

(2) Deputy County Surveyor, at a salary of £600 per annum, together with war bonus on the Whitley scale, and an annual allowance of £150 for travelling expenses.

(3) Assistant Surveyor for Magherafelt District, at a salary of £300 per annum, rising by annual increments of £10 to £500 per annum, together with war bonus on the Whitley scale, and an annual allowance of £150 for travelling expenses.

Applicants for (1) and (2) must have the qualifications prescribed by the County Surveyors' Qualification Order (Northern Ireland), 1928, while applicants for (3) must be qualified in accordance with the Assistant Surveyor's Qualifications Order (Northern Ireland), 1925.

The person appointed in each instance will be required to (*a*) devote his whole time to the duties of his office, (*b*) provide himself with a motor car, and (*c*) reside in the case of (3) within his district and, in the other two cases, within the county.

The appointments, which will be subject to the approval of the Ministry of Health and Local Government, will be made at the meeting of the Council, to be held at the Town Hall, Coleraine, on 20th April, 1946, at 1.45 o'clock p.m.

Preference will be given to ex-Service candidates possessing the required qualifications, provided that the Council is satisfied that such candidates can, or within a reasonable time will be able to, fill the posts efficiently.

Applications, which must be on the prescribed forms obtainable from the undersigned, accompanied by two recent testimonials, will be received up to 4 o'clock p.m. on the 12th day of April, 1946.

Dated this 1st day of March, 1946.

J. L. RANKIN,
Secretary.

County Courthouse, Londonderry. 822

CORNWALL COUNTY COUNCIL.

Applications are invited for the appointment of ASSISTANT QUANTITY SURVEYOR, on the permanent staff of the County Architect's Department, at a commencing salary of £420, rising, subject to satisfactory service, by annual increments of £15 to £465 on Grade IV recommended by the National Joint Council, plus war bonus, at present £59 16s.

Candidates will be required to prepare estimates, bills of quantities, measure work, and adjust variations on contracts; preference will be given to experienced Taker-Off.

The appointment will be subject to the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the County Architect, County Hall, Truro, to whom applications must be sent, not later than Saturday, 23rd March, 1946, accompanied by copies of three recent testimonials.

L. P. NEW,
Clerk of the County Council.

County Hall, Truro.
4th March, 1946. 824

WITNEY RURAL DISTRICT COUNCIL.

ARCHITECT'S ASSISTANT.

Applications are invited for the post of an Assistant in the Council Architect's Department, at a salary of £300 per annum. Applications, stating age, previous experience, etc., and accompanied by copies of three recent testimonials, must reach the undersigned by 28th March.

PETER DUNHAM, F.R.I.B.A.,
Architect to the Council.

14, The Hill, Witney, Oxon. 833

FIFE COUNTY COUNCIL.

COUNTY HOUSING ARCHITECT'S DEPARTMENT.

ARCHITECTURAL ASSISTANTS.

Applications are invited for the appointment of Architectural Assistant (Two) in the County Housing Architect's Department. Applicants must be qualified Architects, under 45 years of age, with previous experience of Local Authority schemes, particularly of housing. The appointments are subject to the provision of the Local Government (Scotland) Superannuation Act, 1937, and the selected candidates will require to pass a medical examination.

Salary will be £400 per annum, plus war increase of £90 per annum.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, must be lodged with the undersigned not later than 11 a.m. on 19th March, 1946.

J. M. MITCHELL,
County Clerk.

County Buildings, Cupar.
2nd March, 1946. 831

BOROUGH OF LEYTON.

APPOINTMENT OF TEMPORARY SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of a Temporary Senior Architectural Assistant in the Department of the Borough Engineer and Surveyor, at a salary of £485 per annum, rising by two annual increments of £20 to £525 per annum, plus cost-of-living bonus, which is at the present time £60 per annum.

Candidates should possess the recognised architectural qualifications (preferably A.R.I.B.A.), and have had good municipal experience.

The appointment is terminable by one month's notice on either side, and is subject to the provisions of the Local Government Superannuation Act, 1937, and to passing a medical examination satisfactorily.

Applications, stating age, details of qualifications and experience, together with copies of three recent testimonials, should be delivered to the undersigned not later than the 27th March, 1946.

Canvassing, directly or indirectly, will disqualify.

A. P. HOWELL,
Borough Engineer and Surveyor.

Town Hall, Leyton, E.10.
1st March, 1946. 823

THE UNIVERSITY OF MANCHESTER.

Applications are invited for the post of BUILDINGS AND ESTATES OFFICER. Qualifications and/or experience in fields of Civil and/or Constructional Engineering, Architecture and Building Contracting. Salary £800 to £1,000 per annum, according to qualifications, with membership of the Federated Superannuation System for Universities; a children's allowance scheme is in operation. Full particulars can be obtained from the Bursar of the University. 826

CITY OF HEREFORD.

Tenders are invited for the erection of :—

(*a*) 50 Non-Parlour type Three-Bedroomed Houses, in blocks of two and four, and

(*b*) 100 Non-Parlour type Three-Bedroomed Houses, in blocks of two and four, on a site at Hunderton, Hereford.

Plans, bills of quantities, and form of tender, may be had on application to the undersigned.

A deposit of £2 2s. must accompany all applications, which will be returned on receipt of a *bona fide* tender and on return of the plans and bills of quantities.

T. B. FELTHAM,
Town Clerk.

Town Hall, Hereford.
4th March, 1946. 835

COUNTY OF DURHAM.

APPOINTMENT OF COUNTY PLANNING OFFICER.

Applications are invited from persons who hold recognized town planning qualifications and who have had considerable experience in planning work, for the appointment of County Planning Officer for the County of Durham, at a salary of £1,000 per annum, rising annually by £50 to £1,250 per annum, plus the appropriate cost-of-living bonus.

Applications, setting out in detail particulars as to age, married or single, education, qualifications, present and previous appointments held, must be forwarded to me at the address given below, so as to reach me on or before the 15th day of April, 1946.

Applications should be accompanied by copies of not more than three recent testimonials.

Canvassing, either directly or indirectly, will disqualify.

J. K. HOPE,
Clerk of the County Council.

Shire Hall, Durham.
March, 1946. 857

DERBYSHIRE COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of DEPUTY COUNTY ARCHITECT, at a salary of £800 per annum, rising by annual increments of £50 to £900 per annum, plus cost-of-living bonus, at present £59 16s. per annum.

Applicants must be fully qualified and accustomed to the control of architectural staff.

The person appointed will be a contributory employee under the provisions of the Local Government Superannuation Acts, and will be required to pass a medical examination.

The appointment will be terminable by three months' notice on either side.

The successful applicant will have to provide his own motor car, for which an allowance will be made for use on county business.

Applications, stating age, present salary and position, qualifications and previous administrative experience, accompanied by copies of three recent testimonials, should reach the undersigned by 29th March, 1946, in an envelope endorsed "Deputy County Architect."

F. HAMER CROSSLEY,
County Architect.

County Offices, Derby.
14th March, 1946. 855

BOROUGH OF ROYAL LEAMINGTON SPA.

APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Junior Architectural Assistant in the office of the Director of Housing.

The salary will be £255—£15—£300 per annum, plus cost-of-living bonus.

The appointment will be subject to the provisions of the Local Government and other Officers' Superannuation Act, 1937, and will be terminable by one month's notice.

Candidates should have passed the intermediate examination of the R.I.B.A., have had good housing experience, and be able to prepare half-inch and full-size details, etc.

Forms of application may be obtained from the undersigned, to whom applications are to be delivered by Saturday, 30th March, 1946.

J. SUTCLIFFE, B.Sc., A.M.I.C.E.,
Borough Engineer.

Town Hall, Leamington Spa.
3rd March, 1946. 853

COUNTY BOROUGH OF DERBY.

BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the temporary appointment of CLERK OF WORKS to supervise various contracts, including housing work, at a salary within the scale £300-£375 per annum, plus war bonus, the commencing salary to be determined according to experience.

Applications, stating age, experience, etc., with copies of three recent testimonials, should be forwarded to the Acting Borough Architect, Council House, Corporation Street, Derby, not later than first post on Thursday, 28th March, 1946, endorsed "Appointment of Clerk of Works."

C. ASHTON, M.A.,
Town Clerk.

Market Place, Derby. 850

Amended Advertisement.

CITY OF MANCHESTER.

Appointment of (*a*) Senior Planning Assistant, (*b*) General Planning Assistant, City Surveyor and Engineer's Department.

Applications are invited for the position of:—

(*a*) SENIOR PLANNING ASSISTANT, at a salary of £625 per annum, rising by annual increments of £25 to a maximum of £700 per annum, plus cost-of-living bonus, at present amounting to £60 per annum.

The applicants should have had a wide experience in the design and layout of new development and large areas of redevelopment. The successful candidate will be required to take control of an engineering, planning, and architectural staff employed on the detailed development proposals for the remainder of the Wythenshawe satellite, and on redevelopment proposals covering large areas of present congested residential development.

(*b*) GENERAL PLANNING ASSISTANT, at a salary of £450 per annum, rising by an annual increment of £30 to a maximum of £480 per annum, plus cost-of-living bonus, at present amounting to £60 per annum.

The applicants should have had a good general planning experience, with emphasis on the architectural aspect of development and redevelopment.

The candidates selected will be required to pass a medical examination before the appointments are confirmed, to contribute to the Corporation Superannuation Fund, and to execute the Corporation's Deed of Service.

Applications must be made on the appropriate form, which can be obtained at my office, and must be returned (together with copies of not more than three recent testimonials) to me not later than 10 a.m. on Saturday, the 30th March, 1946, and be endorsed "Senior Planning Assistant" or "General Planning Assistant," as may be appropriate.

Canvassing in any form, oral or written, direct or indirect, is prohibited, and will be regarded as a disqualification.

PHILIP B. DINGLE,
Town Clerk.

Town Hall, Manchester, 2. 851

Partnerships

Six lines or under, 8s.; each additional line, 1s.

FIRM of Provincial Architects, in Northern Ireland, with large practice at all times, require an experienced Junior Partner. Write, stating qualifications, age, and full particulars, to Box 848.

Architectural Appointments Vacant

Four lines or under, 4s.; each additional line, 1s.

Wherever possible prospective employers are urged to give in their advertisements full information about the duty and responsibilities involved, the location of the office, and the salary offered. The inclusion of the Advertiser's name in lieu of a box number is welcomed.

SENIOR and JUNIOR ASSISTANT required; state age, experience, and salary required. Box 775.

FIRST-CLASS ASSISTANT required by Architects in South Yorkshire; fully experienced in design, construction, supervision of works, and knowledge of quantities; permanent position. Write, stating age, experience, and salary required, to Box 778.

MEASURING SURVEYORS and ASSISTANTS required for work in the London area; must have experience in measurement and settlement of builders' accounts. Please apply, with full particulars of experience, salary required, and when free, to H. M. Doughty & Partners, Quantity Surveyors, 55, Pall Mall, Westminster, S.W.1. 790

EXPERIENCED Architectural Draughtsman required; must have a thorough knowledge of building construction, and be capable of preparing detailed working drawings and specifications from sketch designs for large commercial and industrial buildings; a knowledge of estimating and preparing of bills of quantities an advantage; salary according to age and experience. Write, stating age, qualifications, and full details of experience, to Box 805.

ASSISTANT required for Brewery Architect's Department, East Midlands, with experience in surveying, alteration work, specifications, etc. Write, giving full details of experience, salary required, and when free, to Box 792.

ARCHITECTURAL or STRUCTURAL ENGINEERING DRAUGHTSMEN required for work in Building and Civil Engineering Contractors' London office. Write, giving details of experience and salary required, to Box 812.

QUALIFIED ASSISTANT required, with a view to early Junior Partnership, in busy Hampshire Architect's office. Write, stating qualifications, age, and salary required, Box 841.

JOSEPH W. ANDERSON, Registered Architect, wishes to thank all applicants for the positions as advertised, and to inform them that the same have now been successfully filled. 819

ENGINEER requires Manager, having such practical and technical capacity in design and detailing for reinforced concrete engineering construction as applied to roofs, floors, and staircases as fit him to supervise and control the work of this department; must be able to conduct all technical correspondence and negotiations. Write, giving full particulars of past experience, qualifications, age, and salary required, to Box 845.

ARCHITECT in Home Counties requires Assistant; view to partnership after trial period. Replies in confidence, stating experience, age, and minimum salary, which would be augmented by proportion of fees at end of trial period, to Box 820.

QUANTITY SURVEYOR required by large Multiple Organization, having head offices in the Oxford Street area; permanent position, carrying good salary and expenses. Write, in confidence, full details of experience and qualifications, to Box Q8.3274, Everetts Advertising, Ltd., 10, Hertford Street, W.1. 828

SENIOR and JUNIOR ASSISTANT required by F.R.I.B.A., Westminster; general practice; good prospects and experience; salary depends on mutual endeavour. Write, giving age, experience, and scale of salary required, Box 829.

ARCHITECT'S ASSISTANT, not less than 3 years' office experience, required by important Industrial Company. Replies in strict confidence, stating experience, qualifications, and salary, to Box 836.

SENIOR ARCHITECTURAL ASSISTANT required for Cotswold area. Write, stating qualifications, experience, salary required, etc., to Lt.-Col. Eric Cole, F.R.I.B.A., Dyer Street House, Cirencester, Glos. 837

INTERNATIONAL Correspondence Schools require for immediate full-time employment Junior Architectural Assistant; qualified by R.I.B.A. examination. Write or 'phone (HOLborn 3971), stating age, experience, and salary required, to Director of Instruction, International Correspondence Schools, 71, Kingsway, W.C.2. 843

REQUIRED immediately Junior Assistant Architects. Apply, stating training, experience, and salary, to Maxwell Fry & Jane Drew, 63, Gloucester Place, London, W.1. 838

DRAUGHTSMAN wanted by London roofing contractors specialising in asbestos cement sheeting and tiling; excellent opportunity for young, energetic, and fully experienced man. Box 830.

ARCHITECTURAL ASSISTANT required at once to assist in preparing working drawings for housing schemes; salary according to qualifications. Telephone Enfield 2563, or write Box 849.

JUNIOR ASSISTANTS required for Architect's Office; housing and industrial buildings. Write, giving details of experience, age, and salary required, to Messrs. Atherton & Brenchley, A/A.R.I.B.A., A/A.M.T.P.I., 36, Paddington Street, London, W.1 854

ASSISTANT QUANTITY SURVEYOR required by Midland Brewery Company. Apply, stating experience, qualifications, age, and salary required, Box 858.

Architectural Appointments Wanted

Advertisements from Architectural Assistants and Students seeking positions in Architects' offices will be printed in "The Architects' Journal" free of charge until further notice.

ARCHITECTURAL and SURVEYING ASSISTANT (28) seeks position in Architect's office; good draughtsman, working drawings, details, specifications, surveys, building, chain and theodolite; will go anywhere, and can start at once; further particulars on request. Box 311.

QUALIFIED ARCHITECT (36) offers spare-time assistance in London; quick and accurate work; general experience. Replies to Box 312.

DRAUGHTSMAN (35), general drawing office experience, tracing, colouring; prepare working drawings and details under supervision; London, S., or S.W. England. Full particulars to Box 313.

YOUNG ASSISTANT ARCHITECT, school qualified A.R.I.B.A., desires situation in reputable London office; 6½ years' general experience; salary £400. Box 314.

ARCHITECTURAL ASSISTANT; willing to undertake part-time work in conjunction with own studies (R.I.B.A.); age 30; experienced in war damage, specifications, schedules, surveys, etc. Box 315.

JUNIOR (21), discharged R.A.F., 3 years' experience in London Architect's office, requires post with Architect(s); Brighton coastal area or London. Box 316.

ARCHITECT requires spare-time work; surveys, working drawings, details, war damage reports, etc. chiefly available during week-ends; London district. Box 317.

CHIEF ARCHITECTURAL ASSISTANT, extensive experience in large modern factories and commercial buildings in London and Provinces, first-class draughtsman, thorough knowledge of construction, contracts and supervision, seeks appointment affording full scope and good prospects. Box 319.

ASSISTANT, age 23, exempt Military service, requires position; London or Southern Counties; 4 years' experience industrial and domestic work; preparing for Inter. R.I.B.A. Box 318.

ARCHITECTURAL ASSISTANT, 8 years' experience most types of buildings, requires position in Brighton or nearby South Coast town; salary by arrangement. Write F. G. M., 12, Westcourt Road, Worthing, Sussex. 320

Other Appointments Vacant

Four lines or under, 4s.; each additional line, 1s.

LIGHTING Fittings and Illuminations, Commercial and Technical Work.—Large Electrical Manufacturers require for London office a well-educated British subject, with electrical and illumination training and commercial experience; varied work, sales correspondence, lighting schemes, etc.; permanent and progressive post. Particulars and salary required to Box 818.

DESIGNER of Commercial and Industrial Lighting Fittings, for Fluorescent, Discharge and Tungsten Lamps, required for London by large electrical manufacturers; British national, with electrical and illumination training and practical experience. State salary required and full particulars to Box 788.

Other Appointments Wanted

Four lines or under 2s. 6d. each additional line, 6d .

ARCHITECTURAL Storefitting Draughtsman offers spare-time service to Architects; wide experience in all services; moderate fees. Box 770.

CITY OF LONDON Police Officer requires position of trust; caretaker, etc.; smart appearance; good health; not afraid of work; with accommodation for wife and daughter (19). Reply Box ZZ.469, Deacon's, 36, Leadenhall Street, E.C.3. 847

EFFICIENT Secretary Shorthand-Typist, 10 years' experience, conversant confidential work, filing, etc., would like to work as Secretary to Architect. Box 834.

PERSPECTIVES and Sketches executed, in all mediums. Box 852.

For Sale

Four lines or under, 4s.; each additional line, 1s.

ELECTRICITY FOR COUNTRY HOUSE.—Complete equipment for Sale, including 20 h.p. Oil Engine, Electric Generator and Booster Set, Switchboard, Battery and Motors, 200 volts supply; in good running order; inspection.—Apply Bally, Grundy & Barrett, Ltd., Electrical Engineers, Cambridge. 685

Miscellaneous

Four lines or under, 4s.; each additional line, 1s.

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