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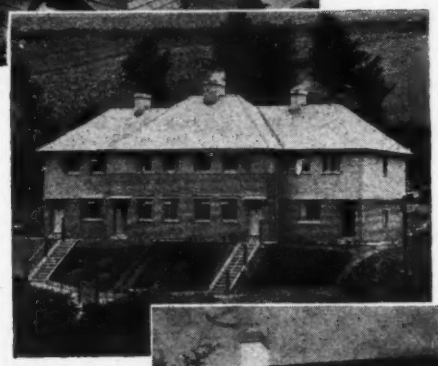
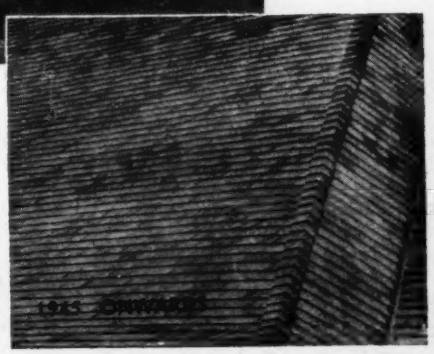


PROGRESS

TO

1939.

1939-45.



Throughout the war, Colt's have maintained a continuous and uninterrupted supply and fixing service of Colt Shingles on War Department, Air Ministry and other Government and essential buildings. Our Technical Department is at the service of all Architects.

Colt Shingles proved themselves during the war to be superior to other roof covering in their remarkable resistance to blast, more than justifying our claims for the permanent security of a Colt Shingled roof.

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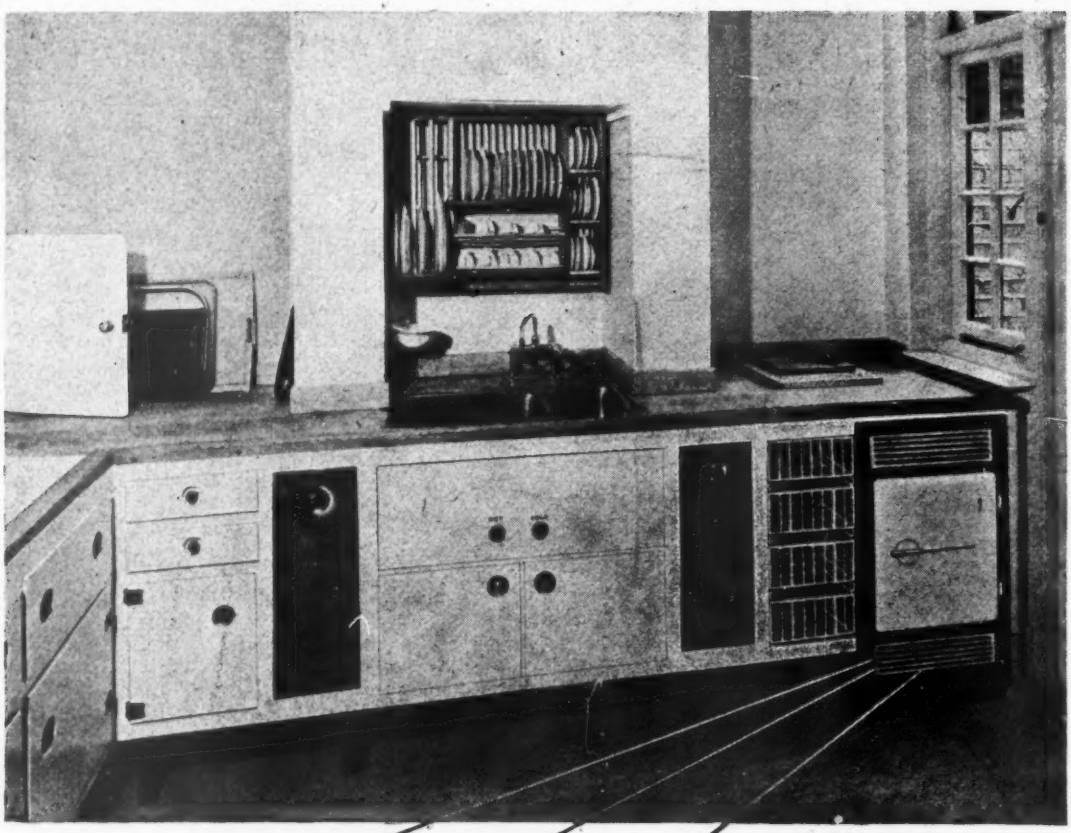
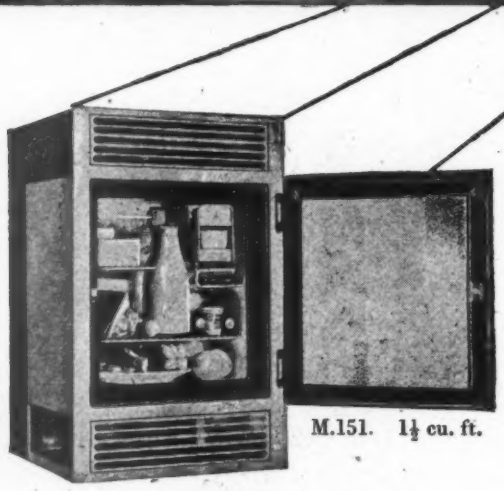


Bucks' Rural Demonstration Economy Post War Kitchen in conjunction with "Good Housekeeping."



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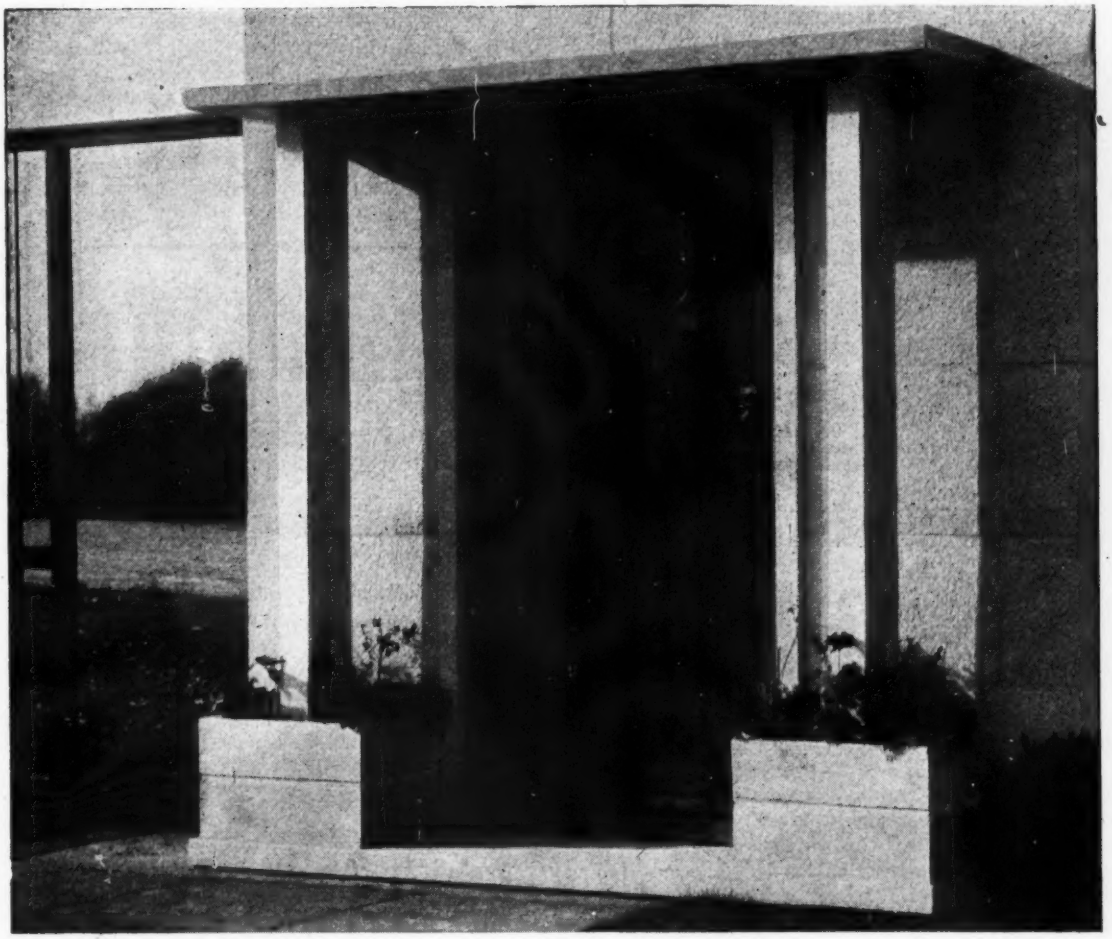


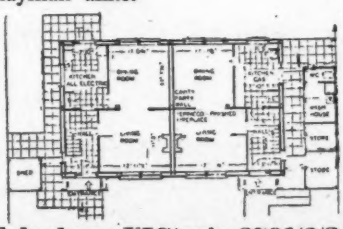
Traditional methods and materials

The Orlit method of house construction is based on the use of "traditional" indigenous materials which do not have to be imported from abroad. The heavy demands on shipping space and on foreign currency will not therefore restrict the development of Orlit.

The Orlit method is, in fact, a development of traditional building and its application to modern methods of factory production.

The wide experience gained during the war in the mass-production of concrete structures, and extensive experiments with surface finishes and lightweight concretes, account for the good reception of the Orlit houses, both by builders and housing experts. Yet the pleasing exterior and the architectural merits of the system appeal to expert and layman alike.

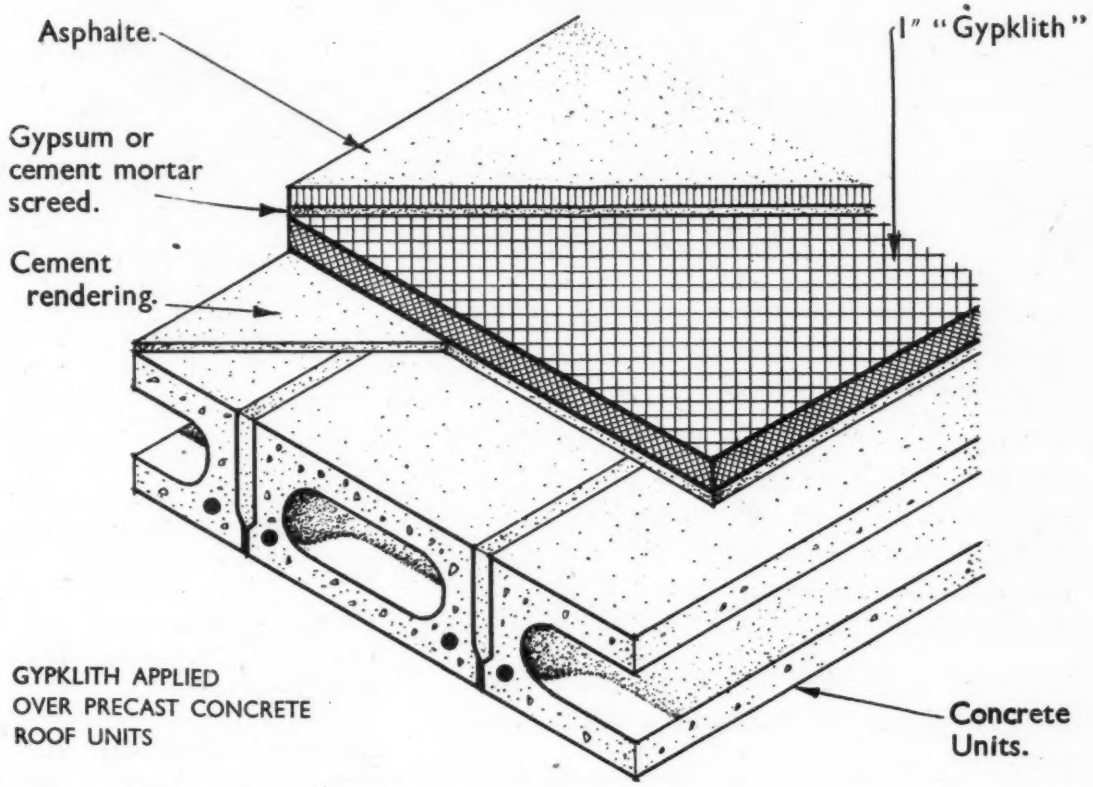
ORLIT



ORLIT LTD., 18, BUCKINGHAM GATE, LONDON, S.W.1. Telephone VICtoria 6701/2/3

"INSULATION may save more than half the fuel required to heat an uninsulated building"

Extract from "The Thermal Insulation of Buildings," Bulletin No. 12, issued by the Ministry of Fuel and Power.



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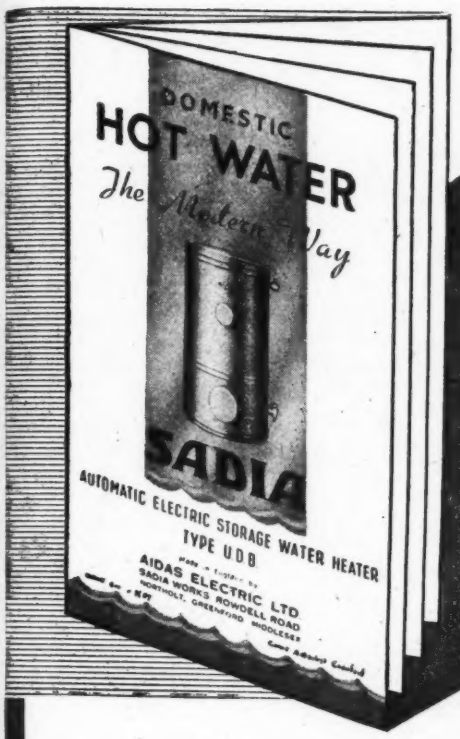

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The newly-published Sadia booklet has been prepared in response to many requests from professional men. It gives concise details of the Sadia Automatic Electric Storage Water Heater, Type U.D.B., with specifications detailing its construction, dimensions, and installation methods.

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We shall be glad to send it to you on request. Please write for a copy, enclosing a penny stamp.

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7. . . . and *fumeless*.
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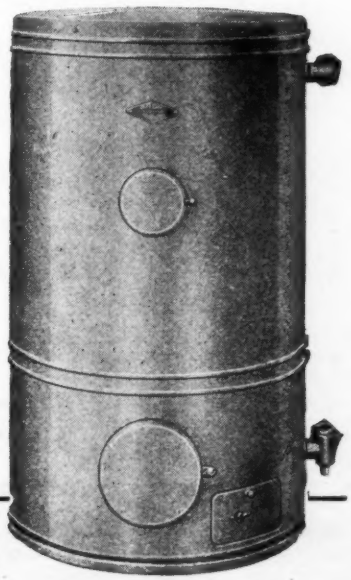
9. It is entirely automatic.
10. Its efficiency has been tested and proved, under conditions exactly corresponding to those of normal household and institutional requirements



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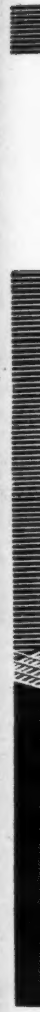

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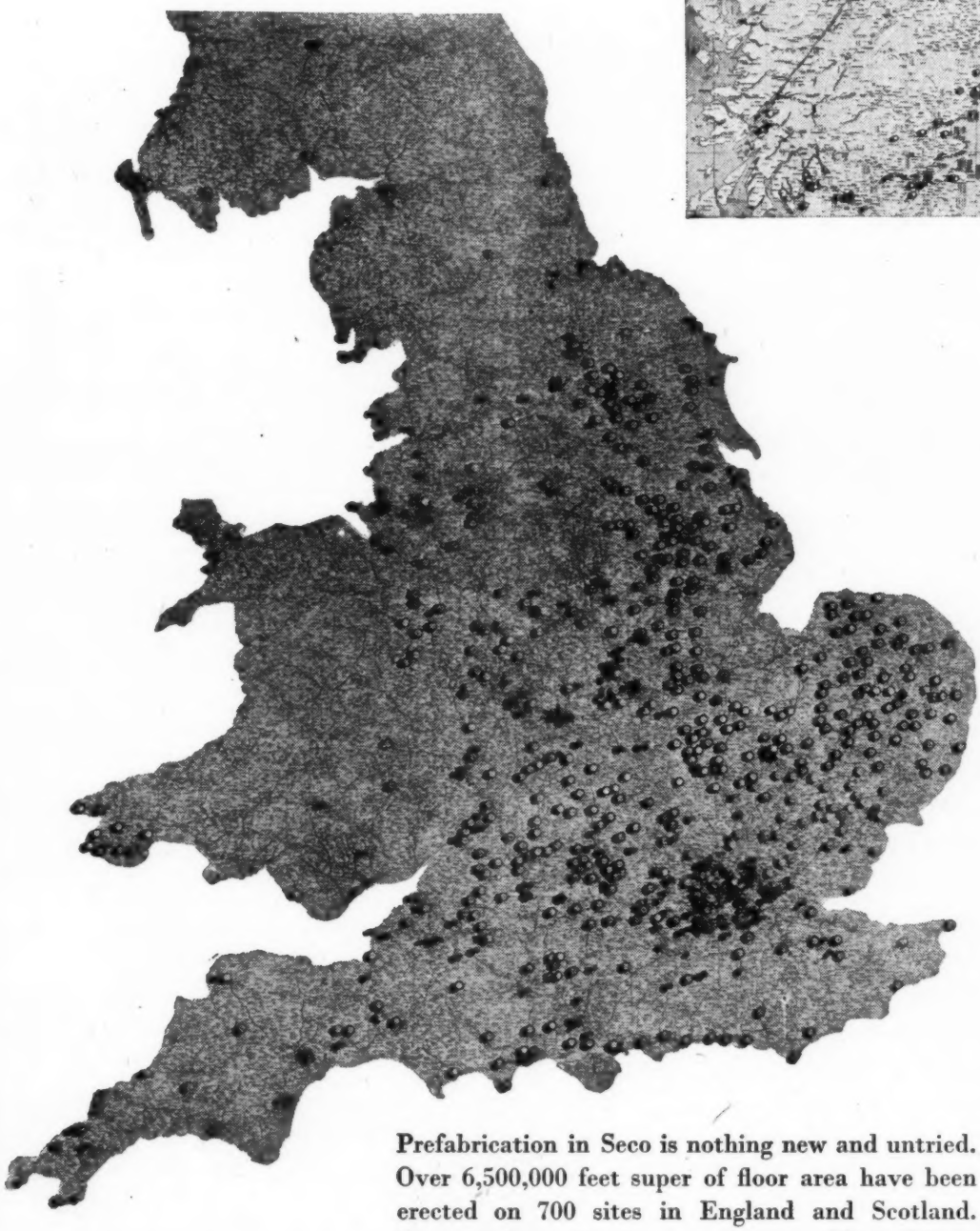

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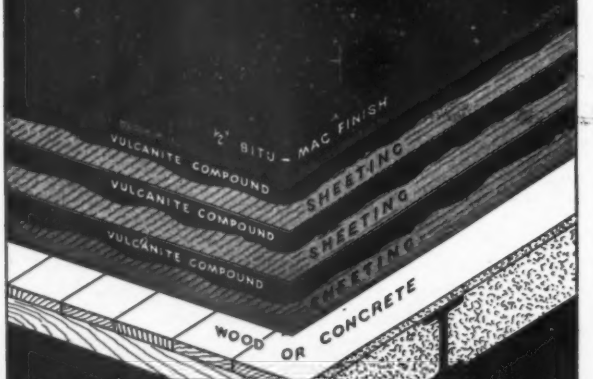

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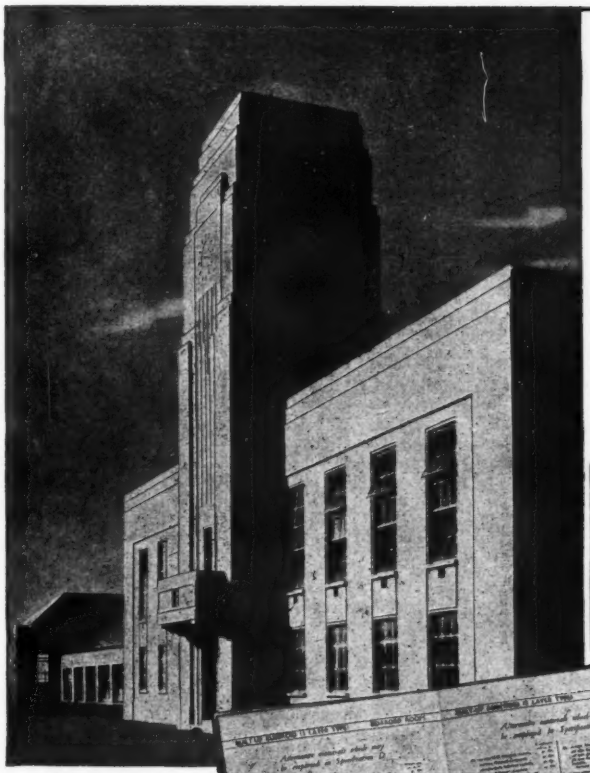
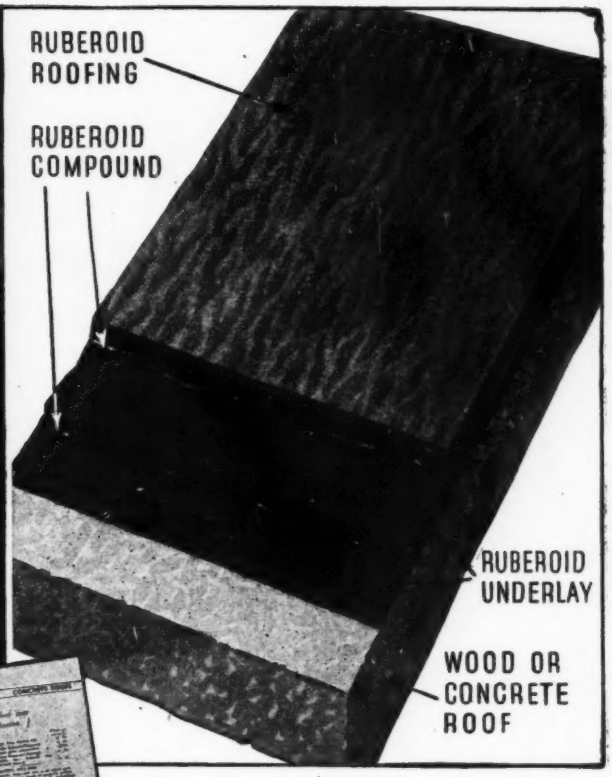


County School,
Weston-Super-Mare.
Architect: A. J. Toomer, Esq.,
F.R.I.B.A. Taunton.



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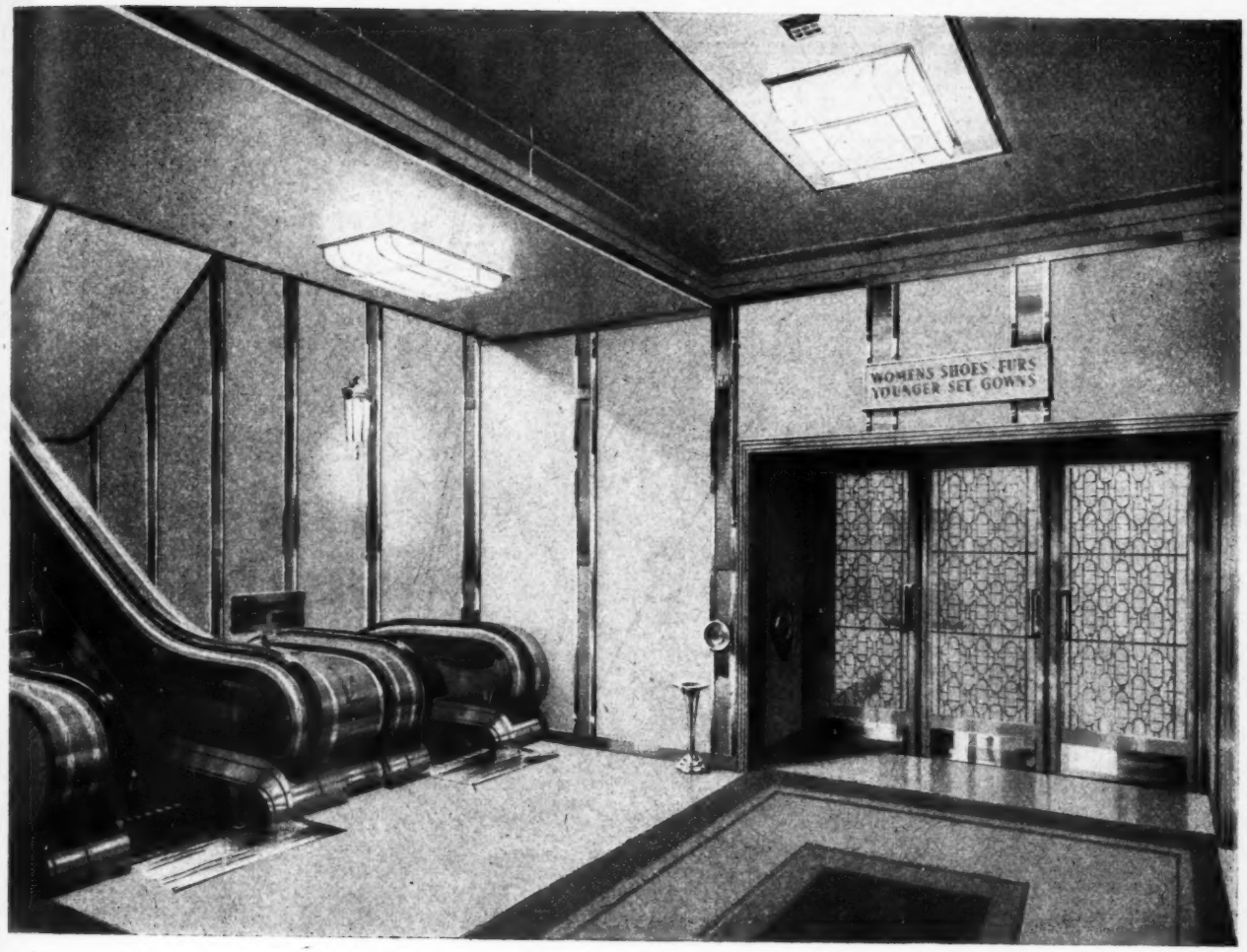

The Escalator Hall at Messrs. Harrods Ltd., Knightsbridge
With acknowledgments to J. L. Harvey, Esq., A.R.I.B.A., I. Starkie Gardner Ltd., and Fredk Sage & Co. Ltd.

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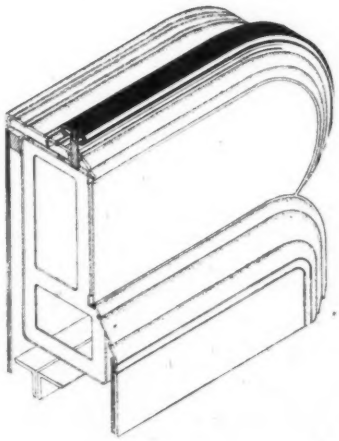

Detail of escalator casings showing assembly of extruded aluminium sections and "Imprest" aluminium side panel.

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"Aluminium in Store Architecture" is the title of an illustrated brochure describing this installation. Copies sent on request.

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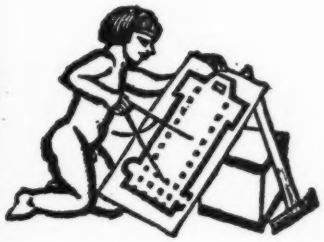


DIARY FOR JANUARY FEBRUARY AND MARCH

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

LIVERPOOL. Film *Steel.* At the Liverpool Technical College, Byrom Street, Liverpool, 3. (Sponsor, Institute of Welding, Liverpool Branch.) 7 p.m. JAN. 16.

LONDON. W. R. Watson. *The Control of Electrical Installation Work.* At the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. (Sponsor, IEE.) 5 p.m. JAN. 10

G. Scott Williamson. *Health Centres.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) 1.15 p.m. JAN. 10.

Country Road Lighting. Discussion opened by C. R. Bicknell at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. (Sponsor, IEE.) 5 p.m. JAN. 14

A. Ramsay Moon. *Shop and Site Welding.* At the Institution of Civil Engineers, Great George Street, S.W.1. (Sponsor, ICE.) 5.30 p.m. JAN. 15

Two Day Conference. *The Family and Its Needs.* At BMA House, Tavistock Square, W.C.1. Speakers include F. J. Osborn, Miss E. E. Halton, Professor F. A. E. Crew, and Sir Montague Barlow. Conference fee 5s. (Sponsor, TCPA in conjunction with the British Social Hygiene Council.) JAN. 24-25.

R. L. Nicholas. *The Manchester Plan.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) 1.15 p.m. JAN. 24

W. H. Hamlyn, L.M.S. Railway Company's Architect, J. L. Martin, Principal Assistant Architect, and R. Llewelyn Davies, Development Assistant. *The Development Work of an Official Architects' Office.* At the AA, 34-36, Bedford Square, W.C.1. A film of the assembly of an experimental station will be shown. (Sponsor, AA.) 6 p.m. JAN. 29

National Federation of Building Trades Employers' Dinner. At The Dorchester Hotel. Guest of honour, Mr. Aneurin Bevan, Minister of Health. JAN. 30

Kenneth Holmes, Principal of the Leicester College of Arts and Crafts. *The Place of the Art School in the Life of the Community.* At the Royal Society of Arts, John Adam Street, W.C.2. (Sponsor, RSA.) 1.45 p.m. JAN. 30

H. M. Llewellyn, of the Building Research Station. *Painting Plastered Surfaces.* ASB Lecture at the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 5.45 p.m. FEB. 6

Professor J. D. Bernal, *Science in Architecture,* at the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 6 p.m. FEB. 12.

Professor G. I. Finch, Scientific Adviser to the Ministry of Home Security. *The Need for Scientific Research into the Prevention and Extinction of Fires.* At the Royal Society of Arts, John Adam Street, W.C.2. (Sponsor, RSA.) 1.45 p.m. FEB. 13

Max Lock. *Surveys and Their Practical Application to Planning.* At the Livingstone Hall, Broadway, Westminster, S.W.1. (Sponsor, TPI.) 6 p.m. FEB. 21

Miss Jacqueline Tyrwhitt. *Planning in Canada.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) 1-15 p.m. FEB. 21.

J. F. Bickerton and Petros Protopapadakis. *Layout of Passenger Stations.* At the Institution of Civil Engineers, Great George Street, S.W.1. (Sponsor, ICE.) 5.30 p.m. FEB. 26

Solid Smokeless Fuel Appliances for Domestic Heating Services. Exhibition. At the Horticultural Hall, Vincent Square, S.W.1. The exhibition is being designed by Ian Jeffcott. (Sponsor, Solid Smokeless Fuels Federation.) MARCH

Professor J. D. Bernal, *Building Research.* At the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 5.45 p.m. MAR. 6.

Maurice B. Reckitt. *The Polls and the Citizen.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) 1.15 p.m. MAR. 7.

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

H. Berry, M.P. *Town Planning and Water Supply.* At the Town and Country Planning Association, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) 1-15 p.m. APRIL 4.

L. H. Keay. *Post-War Housing.* At the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 6 p.m. APRIL 9

MANCHESTER. G. Grenfell Baines. *Use of Colour in Buildings.* At the Engineers' Club, Albert Square, Manchester. (Sponsor, Manchester Oil and Colour Chemists' Association.) 2 p.m. JAN. 18

YORK. *NALGO Exhibition.* At Holgate Hill Settlement. (Sponsor, BIAE.) FEB. 10-23

NEWS

THURSDAY, JANUARY 10, 1946
No. 2659. 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.

★★★

In the King's New Year Honours KNIGHTS BACHELOR : T. P. Bennett, lately Director of Works, Ministry of Works ; Percy E. Thomas, President of the Royal Institute of British Architects. C.B.E. : A. W. Kenyon, Consultant to the Ministry of Works; G. W. C. Buchanan, President, National Federation of Building Trade Employers.

After a conference with representatives of 121 *local authorities in the Midlands, Mr. Aneurin Bevan, Minister of Health, said the temporary housing programme is now GETTING WELL UNDER WAY.* Houses, he said, are being built at a rate of between 500 and 600 a week. He said: When I took over the Ministry there were 731 permanent houses under contract in this country. Now there are 24,000, excluding 15,000 licences issued to private builders. Emphasis should be laid upon starting schemes to take advantage of the flood of building labour coming out of the army between now and next March. By the middle of next year our housing programme should be in full flood. There is sufficient timber in the country for all the houses local authorities are likely to be able to build in the next year at least, and plans are made for the provision of more afterwards.

From AN ARCHITECT'S *Commonplace Book*

ON THE SKYSCRAPER. [*From* An Autobiography *by Frank Lloyd Wright* (*Faber and Faber*).] There in the greatest metropolis of the USA, in ambitious but fatal variety, is the same deadly monotony. Man-eating skyscrapers were all tall but seeking false feudal monumental mass for 1929 riveted steel skeletons. This utter contradiction of structure and idea is what is most remarkable everywhere in New York . . . Of course, the tenuous open steel frame of these tall buildings is, in character, the reverse of feudal masonry mass. Lightness, openness and tenuous strength combined are its building characteristics. These ought to be associated never with heavy stone or concrete as the building code still insists it shall be, but with light insulated covering metals with glass insertion instead of heavy walls. The whole be so designed and the fabric so insulated as to emphasize the pattern of the structure itself and with a fresh beauty not belie the way it was actually built. An old, old story now, this pet American falsehood. Masonry materials do not only belie such steel structures but the practice is really a thrust to the life of the structure itself by adding enormous useless weight to the frame of the whole. That very human equation, the factor of safety—really it is as Dankmar Adler used to say 'the factor of ignorance'—was seriously put to work behind all this crowded mass of pier buildings and crenellated tops of feudal masonry walls . . . Looking in behind these false masonry masses . . . what, really, was it all? The urbanite lost in urbanism, that's all—helplessly drifting toward extinction by the domination of the machine and its unearned increment.

Mr. H. C. Harland: Lack of output in the building industry I put down largely to LACK OF KNOWLEDGE AND SKILL which really amounts to lack of training.

At a meeting of the London Master Builders' Association's Central No. 3 Area, Mr. H. C. Harland, Immediate Past President of LMBA, urged afresh the importance of training to ensure that the building industry became more efficient and scientific. He said: We are all alarmed at the lack of output. This I put down largely to lack of knowledge and skill, which really amounts to lack of training. After the last war, output gradually speeded up with the return of men from the Forces, and I do not fear the future. The urge to achieve and give of his best is an inherent character in our men of the building industry, and I confidently look forward to better things. Referring to higher education up to University degree in building, which, he urged, must be available to all classes of men who showed the inclination and ability to take up managerial and administrative positions in this most important industry, Mr. Harland said that unless provision is made for University education then the building industry cannot be raised to the high level necessary to enable the rising generation to tackle efficiently the many problems of construction facing it.

As a mark of esteem SCOTLAND HAS GIVEN GENERAL EISENHOWER A FURNISHED FLAT in Culzean Castle, Ayrshire, for use during his lifetime.

A commodious furnished flat in Culzean Castle, near Prestwick airport, Ayrshire, has been prepared for General Eisenhower for use during his lifetime. It is a gift from the people of Scotland as a mark of their esteem for him. Bound up with this gift, says *The Times*, is the presentation of the castle and part of the estate to the National Trust for Scotland by Lord and Lady Ailsa and the Kennedy family. The transfer of the property has been made under the Trust's country house scheme, devised to preserve and make accessible to the public great country houses of historic and architectural beauty. The flat, which General Eisenhower has readily accepted, is situated on an upper floor, and will be available at all times for immediate use by General Eisenhower or any of his guests. General Eisenhower has stated that he has been deeply moved by this gesture. He hopes to use the rooms for entertaining British friends. It is proposed to make available to ex-service men some of the cottages on the estate, and General Eisenhower is being asked to select the tenants.

★

The Architects' Registration Council of the United Kingdom offers for award in June, 1946, certain MAINTENANCE SCHOLARSHIPS in Architecture.

The scholarships will consist of a grant for the payment, in whole or in part, of the school fees and necessary subscriptions, instruments, books, etc., and when necessary, a maintenance allowance not to exceed as a rule £100 a year. The scholarships will be renewable from year to year until the student has finished his or her school training. They will be available for Students or British nationality who could not otherwise afford such training to enable them to attend architectural schools approved by the Council. The scholarships will be available both for students who have already begun their training and for students wishing to begin their training. Scholarships will not be granted to Students who will be less than 17 years of age on October 1, of the year in which the examination is taken. Particulars and forms of application may be obtained from the Secretary to the Board of Architectural Education, Architects' Registration Council of the United Kingdom, 68, Portland Place, London, W.1. Copies of previous years' examination papers may be obtained on payment of 6d. The closing date for the receipt of applications duly completed is February 1, 1946.

The Health Congress, organized by The Royal Sanitary Institute, is to BE HELD AT BLACKPOOL from June 3 to 7, 1946, at the invitation of the Corporation.

★★★

The Architects Registration Council of the United Kingdom has finally approved the NEW CODE OF PROFESSIONAL CONDUCT.

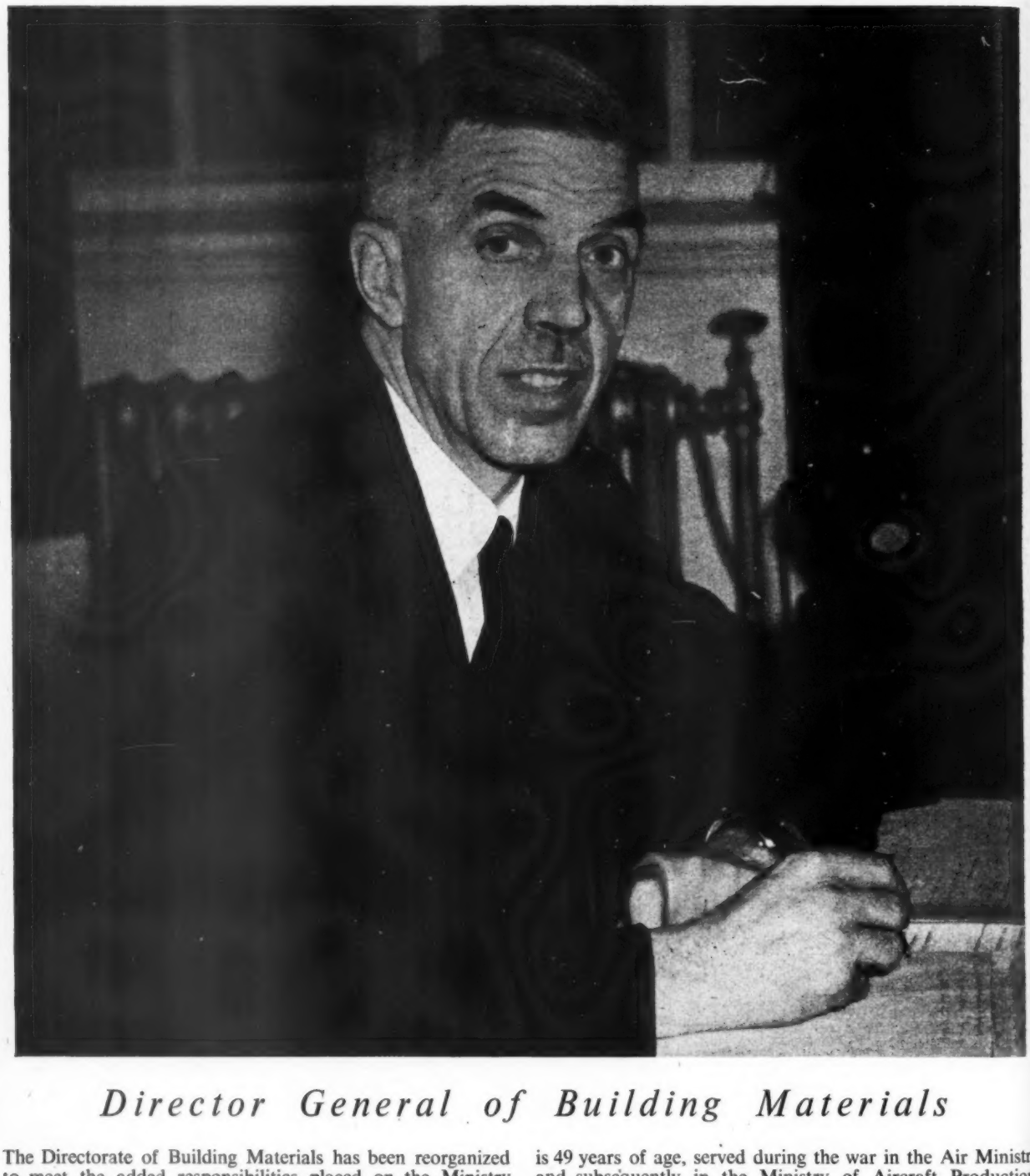
The Code will be issued to all architects as soon as the necessary copies have been printed. It sets out for the first time in compact form, the principles upon which an architect's conduct should be based. It stands in this respect in contrast with the existing code which consists of a number of disconnected prohibitions not accompanied by any statement of guiding principles. New matters are raised in Principle III of the new Code, prohibition of touting; III (v) prohibition of shop window advertisement; VI (vii) responsibility of salaried architects; VII (ii) building speculation; (iii) advertisement of materials; VIII (i) directorship of companies, and there are variations in the text of some of the other provisions.

Flush door manufacturers HAVE FORMED AN ASSOCIATION.

It is called The Flush Door Manufacturers' Association, and includes a designs committee. Mr. W. H. Wakefield, of Magnet Timber, Ltd., is chairman of the Association, and Mr. R. A. Brough, managing director of Leaderflush, Ltd., is vice-chairman.

Former secretary of the National Federation of Building Trades Employers, and first secretary of the National Joint Council for the Building Industry, Mr. A. G. WHITE, HAS DIED at the age of ninety.

Mr. White had attended an all-day meeting of the General Purposes Committee of the National Joint Council on the day of his death. His life's work was the building up of the National Joint Council for the Building Industry. It was largely due to his work that the National Joint Council occupies the important position it does today. Thanks to its work, the building industry has been entirely free from any major industrial dispute over the past quarter of a century.



Director General of Building Materials

The Directorate of Building Materials has been reorganized to meet the added responsibilities placed on the Ministry of Works by the provisions of the Building Materials and Housing Bill, 1945. These changes took effect on January 1, as from which date Mr. F. W. Smith, M.C., became Director General of Building Materials. After some years' service in the Tax Inspectorate of the Inland Revenue, Mr. Smith, who is 49 years of age, served during the war in the Air Ministry and subsequently in the Ministry of Aircraft Production, where he assisted successive Controllers General in the progressing of Aircraft Production programmes. He was released to accompany Sir Archibald Rowlands on a special mission to India, and then joined the staff of the Ministry of Works, six months ago, as Principal Assistant Secretary.

Circular steel water storage dams in new condition are now BEING SOLD AS SURPLUS STORES by the Ministry of Works. There are two sizes, both used by the National Fire Service during the war. Dams with a capacity of 11,500 gallons (24 ft. 6 in. diameter) are being offered for £7 each; dams with a capacity of 20,000 gallons (34 ft. 5 in. diameter) are offered for £10 each. Only a limited number of these dams are available and purchasers will have to collect the components where they lie in various parts of the country. The dams consist of 20 SWG flat steel sheets 8 ft. by 4 ft. with curved split tube nosings for stiffening and shaping the top edges. When assembled on prepared concrete bases they provide emergency water storage suitable for cattle, irrigation and protection of crops against fire. Being emergency tanks only, these dams are not suitable for inclusion in a Ministry of Agriculture grant-aided water supply scheme. Some 5,000 gallon NFS rectangular steel sectional tanks are still on sale at prices varying from £10 to £20 according to condition. Prospective purchasers can obtain details of these dams and tanks from Controller of Supplies, Ministry of Works, P.2B., Union House, St. Martin-le-Grand, London, E.C.1.

★ *Mr. G. W. Buchanan, President of the National Federation of Building Trades Employers: Builders would like an analysis of building costs to be made public, and would welcome any inquiries which the Minister of Health might decide to make. He will very quickly find THERE ARE NO BUILDING RINGS.*

Builders are only too willing to co-operate with the Minister of Health to bring down prices, said Mr. G. W. Buchanan, President of the National Federation of Building Trades Employers. He was speaking at a meeting of the North Western Federation in Manchester. Mr. H. Bardsley, President of the North Western Federation, presided. Mr. Buchanan said: Builders would like an analysis of building costs to be made public, and would welcome any enquiries into the matter which the Minister might decide to make. He would very quickly find that there are no building rings. Critics of the present prices of houses really must distinguish between high prices and unreasonable prices, and they should make sure of the full facts before attacking builders. High prices are inevitable while costs remain high, but unreasonable prices cannot be justified. Builders regard such prices as not only contrary to the public interests, but also to their own interests. A big majority of the prices submitted by builders to local authorities have been approved by the Minister of Health himself as reasonable; on occasion the Minister has found it necessary to prune the specifications of local authorities. There may, I fear, be unemployment in the building industry next year unless the production of materials and equipment is speeded up. I therefore ask the Government to release more quickly men in the Forces who are required for the manufacture of materials such as bricks and light castings and equipment such as baths and cooking stoves. It is no good having the men to erect houses if the materials are not available in the right quantities, in the right places and at the right times. Although the conditions of the release of Class B men have been improved, they are still not coming out quickly enough. One way of making the Class B Scheme less unattractive, without departing from the fundamental principles of the Demobilisation Scheme, would be to make release subject only to the condition that the men obtained employment with a builder engaged on the building of new houses. The men could then do what they wanted to do—choose their town and select their employer.

During the quarter ended September 30, HOUSING LOANS SANCTIONED by the Ministry of Health to local authorities in England and Wales totalled £3,230,624.

Other loans sanctioned were:—Municipal Services (including clinics, sanatoria and mental hospitals), £498,584; Swimming pools, playing fields, recreation grounds, open spaces, etc., £23,018; Water supply, £121,088; Disposal of waste products (sewerage and sewage disposal and refuse destruction), £143,273; Education services (including libraries and museums), £34,398; Air raid precautions, £17,110; Road and bridges (including private street works), £92,615; Other services (including loans to defray contributions, etc., under War Damage Act, 1943). £158,762: Total, £4,319,472.

STANDARDS

A MONTH ago we said on this page, "The production of prefabricated parts for stock should be encouraged and the building industry should absorb as many such products as it can." Since those words were written, Mr. Aneurin Bevan has announced that standardised components are to be used in all Government housing projects and has added (unofficially) that private enterprise housing will in due course have to use the same products. Choosing the weapon most ready to his hand, Mr. Bevan has plumped for a wide range of British Standard Specifications covering products of all types from cement to sinks.

With a few reservations, it may be said that the whole problem of standardization has been very logically attacked by the British Standards Institution and that Mr. Bevan could have gone to no other source without involving intolerable delays and with no guarantee that the result would be any better. For many years the BSI has been working at industries of all kinds and the money which the manufacturer (and the buying public) have saved through its efforts by now amount to a very considerable sum.

At a time when skilled labour is short, and when finished products are obtainable only after long delays, it is obvious that a multiplicity of different models and types can only still further delay production, but we must beware lest standardization becomes, in the long run, no more than a freezing process which will give increased production over a period of a few years, but which will stultify technical progress unless the specifications are regularly revised.

First of all, it is self-evident that sizes can be stabilized with some degree of permanency, at any rate so far as the furniture and fittings of the small house are concerned. But standard sizes are useless unless they also imply interchangeability and therefore the key dimensions must have tolerances low enough for accurate fitting but not so low that manufacturing costs are unduly increased.

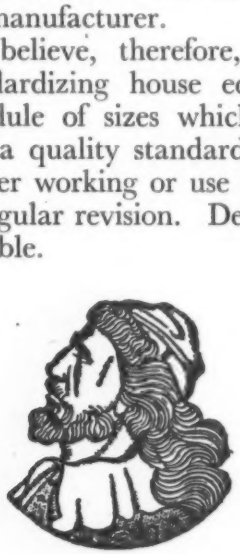
When we come to questions of quality, however, we are on more dangerous ground. In many instances, of course, quality and size are interdependent. RSJ sizes, for instance, may have been standardized to reduce rolling costs, but the designer chooses his sections by their load carrying capacity and the quality of the steel must therefore be specified. But with all standards of quality there is always the danger that the minimum standard will in course of time become the maximum. In the framing of any specification it is always necessary to consider the smaller manufacturer and to avoid setting a standard beyond his reach, with the natural result that the more efficient firms are working to a schedule below their normal practice, and have little encouragement to improve a product which is already better than it need be. The fact that few of the more reputable firms take advantage of a low standard does not invalidate our criticism.

When we come to standards of design we believe that manu-

facturers should be left to make their own choice, or rather it may be left to architects and the general public to insist on good design. (We remember a window specification of 1935. In workmanship, materials and weatherproofness this window was doubtless adequate, but the mouldings were generally considered coarse and the whole design was by no means what architects wanted.)

How far then must standardization be allowed to develop? To decide the question we may take as an example a range of kitchen cupboards. Working height, depth, width and the space can be fixed in relation to ease of working and the dimensions of the average kitchen, and to tie up the dimensions of other equipment, such as cookers, sinks and refrigerators. A list of materials considered to be suitable and the scantlings to be used could be added to the schedule, and the rest left to the manufacturer.

We believe, therefore, that the most suitable method of standardizing house equipment and materials will be the schedule of sizes which could be more or less permanent, and a quality standard, only so far as it is essential for the proper working or use of the product, and it should be open to regular revision. Design would be best left as unfettered as possible.



The Architects' Journal

War Address: 45, The Avenue, Cheam, Surrey

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NOTES & TOPICS

DESIGN STANDARDS

I have in front of me a copy of that admirable but little known volume issued quarterly by the British Standards Institution under the title *Standards Review* (2s. per copy, or delivered regularly at 7s. a year) which tells in a light and chatty way of the activities and ramifications of our national standardizing body.

*

Standardization is a subject about which architects know all too little and over which in the sphere of building we exercise far too little influence. It is to be presumed that architects are represented on many of the committees of the BSI which frame our standards for us and that those architects are nominated by our Institute in the subtle manner in which all such nominations seem to be made.

*

Howsoever this may be, the resulting standards show little evidence that architectural weight has been behind them but a good deal of evidence that the various sponsoring industries have had their way. For this architects have no one to blame but themselves. This is a subject that can wait, and the immediate cause for this note is the threatening incursion of BSI into the field of design standards.

*

To quote from the *Standards Review*: "Full protection against offensive noise has not yet been achieved, and very little indeed has been done to protect the public against offences to the sight. As a result of this failure to guard the eyes and the ears against abuse, these delicate organs have come to except much that is crude and vulgar. This issue of *Standards Review* contains articles written to show how standardization can help the public by protecting it against deterioration of the senses."

*

One must agree that anything that will serve to stay that progressive deterioration of the public's senses is to be welcomed, but next follow three cautionary photographs which bring us up with a jerk—a Decimus Burton lamp standard; one described as "a familiar type of lamp post"; and a third, "the proposed British Standard cast-iron lamp post." To be frank one must admit that the order of beauty in these three examples is respectively from high to low.

*

If the BSI had come forward with a proposal to standardize Decimus Burton's graceful post some of us would no doubt have been satisfied. The functionalist perhaps would not; he might have preferred the "familiar type of post" with its not ungraceful and severely functional top part, but both would stand in awe and amazement that anyone could propose the bastard neo-modern concoction that represents the official effort towards raising our æsthetic taste.

*

We have had a previous warning to be wary of official standardisation of design in the all-too-familiar post-office telephone kiosk, which smites us with its coarse, over-moulded stolid and impractical form everywhere we go; in sylvan pasture or Bath or Wigan it is offensive and out of place. A half dozen of the things in front of a suitably heavy and pompous official building of some sort might strike one differently. It is the endless, meaningless repetition that hurts.

*

We are, indeed, at a low cultural ebb in this country, at any rate so far as visual form is concerned, but standard-

ization of design, if carried to excess. is hardly the solution. By some means we have to inculcate a demand for better design in the community so that, instead of being content with lamp standards designed by a sewage assistant in the Borough Engineer's Department, it will see that it gets something better. This is obviously a slow educational task that must begin in our schools, and perhaps, more fundamentally, in the financial roots of our whole system of society.

*

But a lot could be done, and much more quickly, by insisting that designers of ability should be fully employed, which cannot be said to be the case to-day. Perhaps the new Council of Industrial Design will help in this matter. Rather than sterilize design on a few officially dull examples the solution is, on the contrary, to open it up to individual designers and create more and more examples of imaginative work, a sphere of activity outside the domain of the BSI—at least as it is at present constituted.

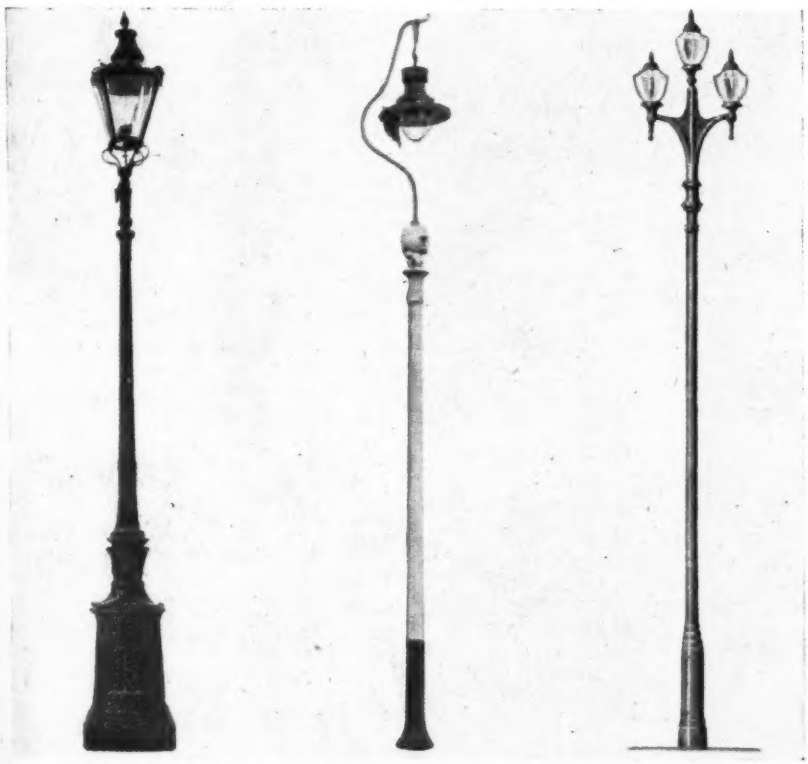
POETS' CORNER

THE SPEC BUILDER SPEAKS—IV

You're wantin' a house, sir? Well, I am your man.
Now listen to me, sir. Just look at this plan.
It's a period plan, and though " stock " in a way
I can alter it, add to it, just what you say.
Now here's the front door. There a bay would be nice,
And really it wouldn't add much to the price;
If to spring just another ten quid you were able,
I'd put you some half-timber work in the gable;
It's worth it, sir, really. Now let's step inside:
The hall's Jacobean, an object o' pride;
The doors'll be deal, but I'll give 'em a stain
With some wunnerful stuff made to simulate grain,
And I'll wager that only a most knowin' bloke
Would be able to tell that those doors wasn't oak.
I always thinks windows reveals a man's standin',
Don't you, sir? I'll put you stain glass on the landin'.
I'll give you a lincrusta dado and frieze
Up the staircase. And as for the W.C.'s,
There's an upstairs for ladies, a downstairs for gents.
Now when can I start on your new residence?

A. C-T.

ASTRAGAL



An illustration from The Standards Review *issued quarterly by the British Standards Institution, on which Astragal comments this week. Three lamp standards compared: left, a design by Decimus Burton; centre, "a familiar type of lamp post"; right, the proposed British Standard cast-iron lamp post.*

LETTERS

G. Symondson

Bomb-damaged Ceiling Repairs

SIR,—Mr. T. P. Bennett, at a luncheon of the Southern area of the LMBA on *Influence Affecting Present Organization*, mentioned the extreme shortage of skilled plasterers, as one of the first causes of delay in the completion of the bomb damage programme. The problem is further aggravated by an acute shortage of plaster; this fact was emphasized by a recent Press report to the effect that two newly built houses in Chelmsford are standing empty for the want of the plaster necessary to complete them. The treatment herein suggested eliminates all plastering, yet at the same time produces an effect both pleasing to the eye and at less expense than that required for normal treatment.

The new treatment is an extension of plasterboarding and battening, but with a difference.

The plasterboarding is fixed direct to the underside of the existing defective plaster ceiling by means of long galvanised clout nails driven through the existing ceiling into the ceiling joists. The position of the joists is easily found by tapping and for convenience should be marked in pencil on the freize of one wall.

The battening is effected with timber, spindled to resemble moulded plaster. Figure 1 shows an example of a section in which all sharp arrises are eliminated so that the battens, when whitened, will give the desired effect of moulded plaster tracery. Notice should be taken of the particular form of the sticking, which is reversible and designed so that the scribing operation for jointing of intersections can be executed at the same time as the spind-

ling of the moulding without a change of cutter.

The spacing of the battens, which has a treble function, is all-important. They should be spaced to form panels not more than 24 in. square, dependent upon the size of the plasterboard and spacing of the joists. The three-fold function of the spacing of the battens serves:

(*a*) to reinforce the plasterboard, which has to bear the weight of the old ceiling as well as its own.

(*b*) to camouflage any unwanted bulging caused by the unevenness of the existing ceiling.

(*c*) to lend effect to the appearance of a decorative plaster ceiling in the Georgian style.

The battens, which are spindled and scribed before despatch, are made in two general lengths: short lengths of fixed dimension equal to the length of a side of a panel and scribed at each end, and long random lengths, also scribed at each end. The random lengths are of no particular dimension, being cut on the job to fit the length of the ceiling from cornice to cornice. To avoid scribing by hand on site, random lengths are cut to size by removing a section from the centre of the length and forming a simple butt joint, the joints in adjacent battens being staggered as widely as possible.

Figure 2 shows a ceiling in which the plasterboard and battens are fixed diagonally, *i.e.*, at 45 deg. to the joists. This gives a very pleasing effect and also permits spacing of battens to be independent of the joist centres. In this case the random lengths would have their ends scribed at an angle of 45 deg.

Care should be taken to ensure that the ceiling rose coincides with an intersection. This is best obtained by unscrewing the ceiling plate and lengthening the leads, before boarding, so that the rose can be refixed on the nearest intersection of battens.

The junction between the plasterboard ceiling and freize is concealed by a cornice, of which a suggestion is shown in Figure 3, and here again it will be noticed that the same cutter profile is used. The theme of the tracery design can, of course, be elaborated as circumstances and materials permit. In the design of the mouldings and set-out of the tracery, however, due consideration must be given to the dimensions of the room. Obviously a heavy moulding casting deep shadows and an over-elaborate design of tracery would be out of keeping in a small room, with a low ceiling. This system of repair need not be limited to the use of plasterboard; for example, many of the soft wallboards such as ¼-in. Cellotex will give a very pleasing effect when colour distempered.

In many instances, the ceiling board also can be eliminated. In this case the batten should be screwed through the old plaster into the joists; the battens, being at close centres, will adequately support the ceiling and at the same time divide the ceiling into small areas so that surface undulation will be hidden. The battens can then be fixed independent of joints and a design can be effected.

If filling and stopping of open joints, etc., is necessitated, this is quite simply and rapidly executed by means of whitening or distemper of an extra stiff consistency applied with a wallbrush.

To the critic who may argue that this method of repair involves the use of timber which is in short supply, the following figures of comparative costs of the two methods for a ceiling 15 ft. by 12 ft. shows that this is more than offset by the saving of labour, and also patent hard-setting plaster, which at the present time is in even greater demand than timber.

Usual Method

	£	s.	d.
Labour, taking down ceiling etc.	1	0	0
20 yds. Super plasterboard ...	2	0	0
Nails		2	6
Carpenter, fixing	2	5	0
Patent plaster and sand for making good top edges of freize, and for rendering and setting of plasterboard ...		8	0
Scrim		2	6
Plasterer, making good top edges of freize, scrimming joints, rendering and setting ...	4	19	0
Loading and carting away spoil		10	0
Total	£11	7	0

New Method

	£	s.	d.
20 yds. Super plasterboard ...	2	0	0
Nails		5	0
Carpenter, marking position of joists and fixing plasterboard	2	11	0
Moulded battens, etc.	2	13	0
Carpenter, fixing	2	14	0
Distemper for stopping ...		1	0
Painter, stopping joints, etc., before decorating		15	0
Total	£10	19	0

The price of £11 7s. in the case of the orthodox repair does not include for the reinstatement of a cornice, though a very large proportion of damaged ceilings do in fact involve the reinstatement or repair of a cornice. Furthermore, the ceiling renewed in plasterboard and rendered and set in hard-setting plaster is not so soundproof as the original lathe and plaster ceiling, whereas the repair by the new method produces a ceiling more soundproof than the original.

A similar treatment can be extended to the repair of walls which are damaged beyond the stage of repair by cutting out and making good of cracks. In this case the old plaster must be stripped off and plasterboard or wallboard fixed direct to the breeze or brickwork, as the case may be. For preference the plaster or wallboard should be fixed vertically, thus eliminating all horizontal joints.

The vertical joints should then be covered with a moulded cover fillet approximately 1 in. wide, and to enhance the decorative effect additional vertical fillets fixed at not more than 12-in. centres between the joints.

The effect of the additional verticals will tend to add height to the room and the otherwise disagreeable appearance of battened joints will be lost in the general decorative scheme (*see* Fig. 2). When only part of the walls of the room are damaged to the extent where stripping is necessary, the scheme can be quite simply extended to the rest of the room by planting the vertical fillets on to the existing plasterwork.

The day will surely come when materials and labour will be had for the asking (and paying), but in the meantime much can be done with little material plus a little original thinking.

Ruislip — G. SYMONDSON

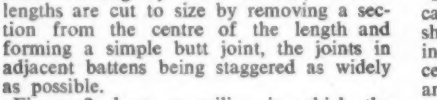


FIG. 1
SECTION THRO' BATTEN

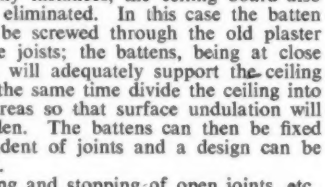


FIG. 3
BUILT UP CORNICE

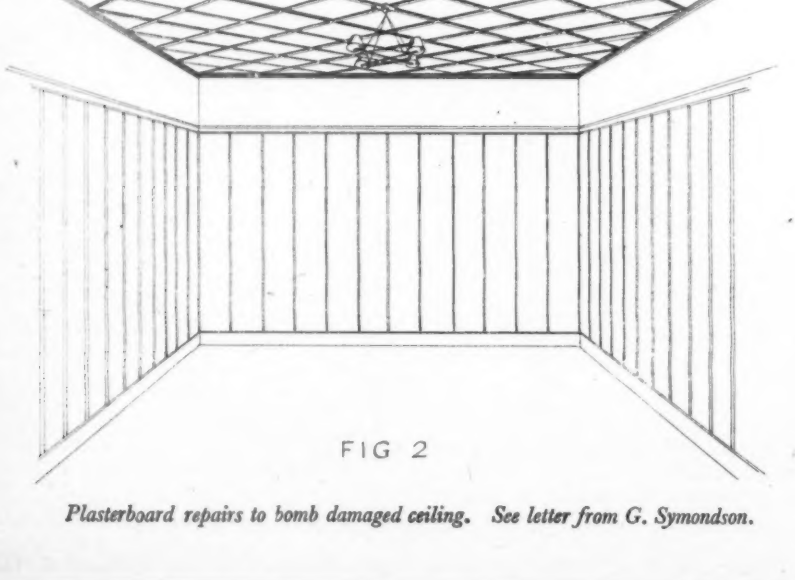


FIG 2

Plasterboard repairs to bomb damaged ceiling. ***See letter from G. Symondson.***

PHYSICAL PLANNING SUPPLEMENT

CREATING A NEW TOWN

In the following article, which is condensed from a lecture given recently at the Town Planning Institute, Mr. Eccles, who has been associated with the building of Welwyn Garden City for the last 17 years, draws a picture of the essential processes which go to the creation of a new town. This subject is of particular interest in view of the satellite town proposals embodied in the Greater London Plan.

by John F. Eccles

As there are barely half-a-dozen modern examples of conscious town-building in the world to-day, it is not possible to refer back to past experience to any great extent. I must start from certain elementary basic assumptions concerning the site of this new town of about 60,000 inhabitants.

It has presumably been intelligently chosen with the primary purpose in mind and consists of not less than 5,000 acres of suitable territory with a railway and main road running through it or alongside it at some points. It is also taken for granted that geological and geographical knowledge of the area reasonably confirms its suitability to provide the future town's water supply and to facilitate the general sewage disposal arrangements on a roughly economical basis.

I must also assume that the new organisation set-up to control the building of the new town consists of a group of responsible men constituted as a Board or group of Commissioners deriving authority ultimately from Parliament and that I am examining the problem as the theoretical chief executive of such a body. This implies a considerable measure of check-control by the Commissioners over general policy, but, on the other hand, a considerable measure of freedom to the executive to organize freely to carry out the policy with a minimum of administrative interference. It also assumes the existence of a very liberal and unorthodox financial policy and the absence of any risk of grandmotherly suffocation by any Government administrative department.

My first step is to look for a team. It must include a first-rate civil engineer, a top-grade Architect-Town-Planner, an efficient Administrative Secretary possessing a good deal of legal knowledge, an Accountant and Financial Officer and finally a general factotum-cum-personal-assistant with some knowledge of sociology and with it something of a visionary. None of these should be in my view more than 50 years of age and, apart from their special qualifications, they should possess energy, enthusiasm and the ability to concentrate on the main problem to a high degree and alongside supreme self-confidence in their abilities there should be a passion for preserving freedom of thought and personality in others as well as themselves.

Many things will have to be done simultaneously and as quickly as possible. I will enumerate them as simply as I can.

An accurate 5-ft. contour survey on the 1 to 2,500 scale of the entire area should be regarded as the urgent first priority. This is absolutely invaluable as the more detailed inspection of such a plan begins to engender ideas about drainage, main roads, playing fields, special centres and a host of other things, all of which should at this stage be allowed to remain somewhat nebulous. Whilst this is going on, all members of the team should spend every spare moment tramping up and down the territory with maps and the new plans in their hands, so that gradually the whole area begins to stamp itself on their minds as a large pattern in which every important natural feature will figure. The new plans should, of course, include the careful plotting of all important isolated trees and of such features as knolls, drainage ditches, rivulets and streams, woods, copses, chalk pits, swallow holes and hollows.

The railway must receive immediate consideration and, arising out of the determination of the position and extent of the sidings and the town's goods and coal yards, the site of the industrial area must be worked out in the first general terms. The situation of the Railway Station itself must be looked at from the point of view of industry, the probable residential areas and the tentative position of the central civic and commercial area. A considerable area of land will need to be allocated for the ultimate future extensions of the railway services and the Railway Company should be stimulated to take a generous and energetic view of its responsibilities.

The need to provide road links between, on the one hand, the station and the main centre and, on the other hand, the industrial area, the various residential areas and the main traffic roads outside the town in at least two opposite directions, will lead to the provisional sketching of these main links on the contour plan. The first outline of the industrial area, the central zone and rough indications of the urban units will also begin to appear. The railway will naturally have a preponderating influence on the industrial area allocation, whilst the central zone should preferably be placed on fairly high land easily accessible from the station. A more detailed delineation of the main plan should now be held up to allow for the consideration of other important factors.

At this stage foul and surface water drainage comes to the fore and the preliminary conceptions must be weighed against the physical and economic practicability of the general drainage arrangements. The surface water problem will probably prove to be easier of the two, since the site is almost certain to include small streams or rivers into which the surface water will be directed under appropriate conditions. Alternatively the presence of substantial swallow holes may help to overcome some of the minor surface water drainage problems. The foul water drainage will necessitate the careful selection of the right site for the sewage works, and the prevalence of south-west winds will probably direct the selection towards the north-eastern perimeter of the estate. It is, of course, more economical to handle most of this drainage by gravity falls, although the practice of collecting sewage at subsidiary pumping stations and running rising mains to the heads of the gravity system is effective and need not be extravagant. The handling of the sludge and effluent from the sewage works will involve a good deal of consideration, and there is much to be said for converting the sludge into fertilizer, as seems to be the growing practice in the USA. Particular importance will need to be attached to the effect of industrial and trade wastes discharged into the foul water sewers. Both as regards volume and nature of chemical contents, these discharges are likely to be a source of continual trouble to the Engineer. It also makes it essential to obtain from all the future industries the fullest possible statistics of their sewage disposal needs.

The consideration of sewage disposal and effluents raises at the same time the question of the future town's water supply. A liberal view of this requirement will be essential, and it is assumed that there is adequate underground water at an economical depth for all future needs of the new town. The selection of the sites for the main pumping station, the principal reservoirs, subsidiary high-level reservoirs and the rising and chief delivery mains will follow, and will again introduce a new integral into the already complex picture.

It should be remembered that the handling of both sewage and water arrangements may well involve extensive consultations with River Conservancy Boards, and other neighbouring Sewage and Water Authorities.

To swing from one extreme to another, it will be impossible to proceed safely further without examining the preliminary land requirements for the schools. Current demands for school playing fields are so large that a considerable proportion of the reasonably level land will have to be

appropriated to this use. A further proportion will, of course, also be needed for the general town playing fields. I estimate that, in accordance with existing general regulations (which may have gone a little too far in the direction of extravagant allocations of land) the schools of the new town—about two dozen or so—will need some 350 to 400 acres of land, most of it reasonably level. The tentative allocation of these sites, particularly the Secondary School Sites, will emphasize certain lines of approach to the siting of the residential areas and will throw up new ideas on the provision of some of the principal residential development roads, since readiness of access must be an important characteristic of these schools.

We are now in a sufficiently advanced state of preliminary preparation that we can send the Engineer and the Town-Planner away into a corner for a few weeks to prepare the first tentative general lay-out. It will, of course, be hopelessly wrong, and will initiate a long-drawn-out argument on the merits of the different pet theories of current engineering and town-planning teaching. Above all, adequate latitude must be given to those queer hunches which from time to time come to people when engaged on major creative enterprizes. There is art in all this work and, as art owes more to the spirit than to the mind, inspiration must be allowed to play its full part, although, of course, always subject to critical examination.

This first tentative plan should now show roughly the following essential allocations of land based on a new town of 60,000 people:—

(1) From 50 to 100 acres of additional railway land for main marshalling sidings, subsidiary industrial marshalling sidings, coal yards, town goods yard, rolling stock sidings, administrative quarters, and the main station and station approach.
(2) Between 500 and 600 acres for the future industries.
(3) Probably 40 or 50 acres for sewage disposal works.
(4) Four or five acres for the main water pumping station, and about twice that area for the reservoirs.
(5) About 50 to 60 acres for the central civic and commercial area.
(6) A total of approximately 2,000 to 2,500 acres of land for general urban purposes divided into at least half-a-dozen separate units, each showing a provisionally selected area of about eight or ten acres suitable for a subsidiary commercial, shopping and social centre.
(7) First attempts to allot 350 to 400 acres between at least two dozen school sites reasonably associated with the urban development.
(8) The rough allocation of another 400/500 acres as sites of general town playing fields for the major organized games.

The plan will thus show some kind of colour on anything from 3,500 to 4,500 acres of the whole area of about 5,000 acres, and the principal roads showing access from outside, and the essential links between the integral parts of the town. By the time the twentieth or so edition of this plan has been prepared it will begin to take on some semblance of form with which all members of the team will seem disposed to agree. Under current conditions, a halt of several months or even years would need to be called whilst the local authority for the area, the particular County Council, the Regional Planning Committee, and half the Ministries in Whitehall quietly examine the proposals and methodically chew the cud of ideas, many of which might possibly not be understood at all. How this stile is to be surmounted with even modest speed, I have no notion, unless there is a provision that if nothing is heard from these authorities within a month, they must for ever hold their tongues.

One warning should be given here. When this first general development plan has been agreed by all parties and authorities, it should not in consequence be regarded henceforth as rigid. To work out in some detail most of the central area, a third of the industrial area, and the first two residential areas at the most, will, in my view, suffice for the first three or four years, and I forecast that the team will be startled by the expansion of their own approaches to subsequent developments engendered by experience in the early period.

On the very important question of the Local Authority for the area, it is likely that the land on which the new town is to be built will overlap the district of three or four existing local authorities.

Even should this not be so, the area would probably comprise part of a rural district, ill-equipped to act as an appropriate local authority participating in the new venture. In my view, it is absolutely essential that steps should be taken at once to detach the whole area allotted to the new town and constitute it as an entirely separate local authority, possibly first as a parish which would subsequently be converted into an Urban District.

During the early years, the new local authority may have relatively nominal functions, the developing authority undertaking at first some of the responsibilities usually shouldered by a local authority, but as the town grows the new Urban District Council would more and more assume the normal functions of such a body.

Questions of compensation to existing authorities, or of initial representation on the new authority, should certainly not be allowed to delay its foundation.

In the meantime, the County Council will be called upon to undertake its responsibilities, and as the Education Authority for the district will have been set to work on the school requirements with the aid of the tentative plan.

Attention should next be given to the future requirements of the town in the way of electricity, gas and telephones.

As a background to these activities there will be the all-embracing problem of finance. This is bound to be a State question of providing large credit facilities on very favourable terms, since the rate of interest on the money required will have considerable influence on the ultimate financial result. Much of the initial expenditure on land and the primary large-scale development, although it forthwith makes assets of a value more than equal to the costs, will not be fully revenue producing for some years. In other words, the accounts of the development corporation, prepared on orthodox lines, will show annual deficits which will be fairly substantial with interest rates of, say, 3¼ per cent., and will still be not inconsiderable even with such a low rate as 1 per cent. To obtain a rough idea of the position, one should take 5,000 acres at, say, £100 per acre—that is £500,000—and add a similar sum for the probable minimum expenditure on major opening up works. It may, of course, be substantially higher than this figure. With interest at 1 per cent. on this £1,000,000, one is faced immediately with a cumulative outgoing of £10,000 a year before the first important revenue begins to arise. Add to this the costs of the new organization (salaries and expenses) and already we are faced with an initial deficit after the first year at the rate of anything from £25,000 to £50,000 per annum at cumulative interest, which can only be made good by future income.

The essence of the matter is that these first deficits are part of the inescapable capital expenditure incurred in developing a large area of land, and they must be later matched by the creation of the appropriate land values. I would, however, remind you that it is not enough to create these values; they must also be secured for the development corporation, a point to which I shall return later.

It will, however, be of the utmost importance at this stage to examine the new tentative development plan from the economic standpoint to ensure as far as one can that it does not involve any extravagant waste of human effort in carrying it out, which could be avoided by a better alternative. Planners must always remember that an unnecessarily extravagant plan ultimately results either in high rents or high rates to the weekly wage-earner, who usually can ill afford to face either.

There is one vital factor which can have a preponderating influence on the finances of the new town, namely, the speed of development. To the limit of the ability of the town to assimilate naturally the additional population brought into the town each year, development should be as rapid as possible. In this way loss of income from idle assets, created years ahead of their reasonable fruition, can be substantially curtailed. As the loss of income has a cumulative interest effect, the difference in financial result between two specific rates of development can be very great.

There is one other factor which has to be faced at the very beginning. The creation of a new town from a virgin area

of land can only be done through the agency of human beings who require shelter, food, drink, recreation, and some reasonable amenities of life. On the other hand, very few of these are likely to be found in reasonable proximity to the selected area. It will, therefore, almost certainly be necessary to house a considerable proportion of the development corporation's staff, and the building and engineering operatives on the site in temporary, but nevertheless comfortable, accommodation. This is a case where a five-day week, with the best possible rates of pay, and conditions of living and working may well prove a first-rate economical proposition. The provision of temporary water, sewage and electricity facilities, a retail store, "dry" and "wet" canteens, temporary cinema and other items will be an essential part of these arrangements, and the careful selection of the site for this pre-town civilization will be needed to avoid interfering with the first major development projects.

We ought now to examine very briefly the Order of Battle for the first permanent constructional works. A railway belt, and a few vital lengths of service roads for ease of handling materials will obviously come first. Then at almost one and the same time, it will be important to begin on the construction of the sewage disposal works, the surface water outfalls, and the main trunk sewers to the industrial area, the central area and the first major urban unit, adding sufficient lengths of secondary main sewers to provide for the first, say, 2,000 houses or more. The equivalent principal roads will march in step and thus provide the main traffic links in the new town. A beginning must also be made on at least one of the main access roads from outside. The first water bore-holes must be sunk, and the rising and chief delivery mains constructed, together with the first reservoir. In the meantime, the electricity and gas authorities must press forward with the initial provision of their supplies to the principal points of activity, and the railway company must complete the first part of the future station and the goods yard without delay.

The first two or three hundred houses should be commenced so that the first occupation reasonably coincides with the initial operation of all the main services, and whilst these are being built plans of a second group of a similar number of houses to slightly different design (particularly external) should be in active preparation.

An important question will arise over the construction of the first roads. I have a strong bias in favour of concrete roads to modern specifications with relatively substantial overall widths between boundaries, according to the appropriate economic requirements. It is, however, important that these roads should not be hacked up every few weeks by public or statutory authorities who have not made adequate provision for the essential requirements. The answer is complete or partial duplication of the services, with adequate channelling at suitable intervals for crossings. The extra cost of this is relatively small, and as a rule is easily outbalanced by the saving in future maintenance.

Another question concerns the value of establishing a large building and engineering organization, as part of the development corporation's direct activities. At the beginning, contractors will have to be employed because of the large number of works to be undertaken at once, but I should strongly suggest the creation of a building force within the corporation itself, which would gradually assume the responsibility for the greater part of the corporation's own contracts. There would still be almost unlimited scope for private contractors.

I have now completed a very rough sketch of the beginning of a new town, and I propose to devote the rest of the time to a brief examination of some of the important problems likely to be met as the building of the town proceeds, the solution of which must be attempted in the light of the available information and knowledge.

In what follows I am, of course, assuming that in no circumstances will any of the land be sold, and that leases maintaining control of all plans and buildings are granted whenever part of the building development is undertaken by other parties.

First and most important is the nature and distribution of the new population. An essential objective is the provision of all types of houses, from those rented at a few shillings a week, to a few carrying rents of as much as £150 or £200 a year, excluding rates, or costing several thousand pounds to build.

It is vitally important in my view that the building of these houses should be the work of many organizations. Particularly in the case of the inexpensive weekly rented houses, which should not be provided solely by a local authority.

Authorized associations and housing societies should be encouraged to participate actively in providing weekly rented houses alongside those built by the local authorities, whilst the development corporation itself might reasonably include housing schemes in its own building programme. The important objective is to secure a wide variety of responsible landlords, who are offering a variety of different types and designs of houses, at different standards of rents. In other words, we must avoid the frustration which arises from a stereotyped approach and a single landlord.

It should be an axiom that every major urban unit of the new town should be deliberately planned to include houses and flats to meet the requirements of all types and categories in the population, and sites should be appropriately allocated to ensure the avoidance of segregation without throwing obvious incompatibles cheek by jowl.

From the point of view of the man-power needs of the expanding industries, the development corporation will have to watch the rate of provision of the different types of houses and, where necessary, step in with schemes of special types to meet particular needs which are not being covered. The impact of the particular form which the industrial development will take from time to time, will frequently lead to changes of stress of demand for different types of dwellings. It will, of course, be essential to guide, within reason, the expansion of industrial activity to ensure a fairly natural demand for all types of employee; male and female; young and old; skilled and unskilled; factory operatives and office workers; manual and sedentary.

The industrial development of the new town will fall broadly into three major categories:

(*a*) Industries in the nature of services to the town, such as builders, laundries, bakeries, printers, electricity and gas supplies, etc.

(*b*) Industries of reasonable size, either new or decentralizing from neighbouring congested areas, which will lease sites and erect their own buildings.

(*c*) Other industries of variable size which will prefer to rent standard factory premises.

It will be a valuable part of the policy of the developing corporation to grant certain facilities and aid to industries in all these classes, including those industries which fall in category (*b*). These will frequently require some form of financial assistance in the way of mortgages on their new buildings, and it is an advantage if the corporation is empowered to provide such capital on reasonable terms.

It will certainly be important in the case of the requirements of industries in category (*c*) that the development organization should build considerable quantities of sectional factories of various sizes and types to be leased, on almost any reasonable terms as to period, to large or small businesses including embryonic new enterprises. This form of industrial development will maintain the necessary resilience and ensure that new and enterprising young businesses are given a chance to start, to expand and ultimately themselves to stimulate in new directions the industrial activities of the growing town.

I now come to a very special group of requirements, namely, the provision of shops, cinemas and licensed premises. The special features arise from the importance of this part of the development to the creation of the requisite land values, on which the financial success of the undertaking will to an important extent depend, and also from the need to provide a good service from the earliest possible date, developing into a first-class service in later years.

To deal first with cinemas and licensed premises. In view of the general trend, it is obviously important that the provision of these requirements should be in the hands of those who are expert. For cinemas it means that one or more of the main circuits should be asked to consider providing the necessary buildings. On what is probably a reasonable assumption that a cinema holding, say, 1,000 to 1,200 people is required for every 8,000 to 10,000 population, I should personally favour incorporating one cinema, of reasonable size in every important shopping and social centre where the population to be served is not less than about 8,000 people. These smaller cinemas would need to be supplemented in the final town by at least one and probably two of rather larger size in the main centre. All cinema sites should be liberal in size and provide ample accommodation for parked cars. The car parks will need to be properly designed to avoid the usual wilderness effect.

The problem of licensed premises is not easy to solve, since apart from disputes as to the merits of the different methods of providing for this need, one is also faced with cross currents of the moral aspect of the problem. On the whole the logical answer appears to me to be that of providing a reasonably adequate number of licensed premises, built to the best modern standards by brewery firms who are prepared to take an enlightened view of their public responsibilities. In each case I would recommend that the provision of meals and non-alcoholic refreshment should be an essential part of the service provided.

The separate units should not be too small but, on the other hand, they should not be very large. The medium sized units, provided they are built in a quantity adequate to meet the essential needs of the population, are by far the best solution as, on that basis, overcrowding can usually be avoided and adequate supervision maintained. It will probably be found that two or three medium sized premises will be required in every major unit of 8,000 to 10,000 population.

The problem of both cinemas and licensed premises must, however, be continually re-examined, since circumstances, conditions and even the wishes of the people, can differ so widely in different areas and at different times.

The ground rents to be assessed for the sites allotted to cinemas and licensed premises will be substantial, certainly in my view not less than the equivalent of a capital value of £10,000 per acre, possibly much more according to circumstances.

The question of shopping will always be a major problem whilst the town is being built.

It may be helpful if at this point I describe what will probably be the position at Welwyn when the town has been completed. We shall have by that time at least six subsidiary shopping centres, each equipped with 20, 30, or even more independent individual shops of various categories, although with very few, if any, directly competing with each other. There will also be a substantial branch of the local Co-operative Society, usually alongside a branch of our local multiple retail business. These subsidiary centres will provide most of the day-to-day needs of the people, together with a modicum of other requirements, but the main town centre will be the rallying point for all the major shopping expeditions of the people in the town, short of going outside the area altogether.

The centre of the town will probably consist in the end of anything from 200 to 300 individual shops, including branches of the national multiple retail businesses, together with an important branch of the Co-operative Society, probably in two parts, one substantially food and the other non-food, but above all, dominating the entire centre, there will be a large departmental store, giving a very substantial service to the town, and probably also to an area outside, extending ten or fifteen miles in all directions, almost commensurate with the service provided by businesses such as Bentalls at Kingston, or even Harrods, Selfridges, and Barkers of London.

Adequately planned, organized and completed on this basis, the shopping arrangements of Welwyn will, in my view, approach fairly near to the ideal, giving full scope to the private individual who wishes to provide a special form of retail service on a personal basis; for the multiple businesses, with their special facilities, for a complete well-run co-operative business, all combined with a large departmental stores which can give shoppers the necessary thrill derived from that form of shopping which can fill up any gaps that are left elsewhere in the retail service.

Finally, we come to the big group of requirements which, in my view, must take up a large part of the work of the development organization responsible for building this new town. I refer to the cultural, religious and recreational facilities of the new population.

I cannot possibly do more than touch on this problem which covers fundamental human requirements from the cradle to the grave—in fact, before the cradle if you include the antenatal clinics. The field includes all manner of health services, supplementary educational services, gymnasiums, swimming baths, both indoor and outdoor, churches, billiards halls, libraries, museums, art centre, music centre, concert and meeting halls, dance halls, indoor sports of all kinds, drama—including a repertory theatre for the encouragement of the amateur, and a whole series of minor requirements for small sections of the population, who will organize themselves into a multitude of societies needing some sort of accommodation. The development organization will of necessity have to begin providing for some of these requirements at a very early date and the precise order of precedence ought to be left to some extent to the imaginative interpretation of the requirements as they appear. There will also be the important question of co-ordination, since the requirements will be laterally subdivided into those for young boys, for young girls, for adolescents separately and jointly, and for adults, including a number of separate organizations for men and women.

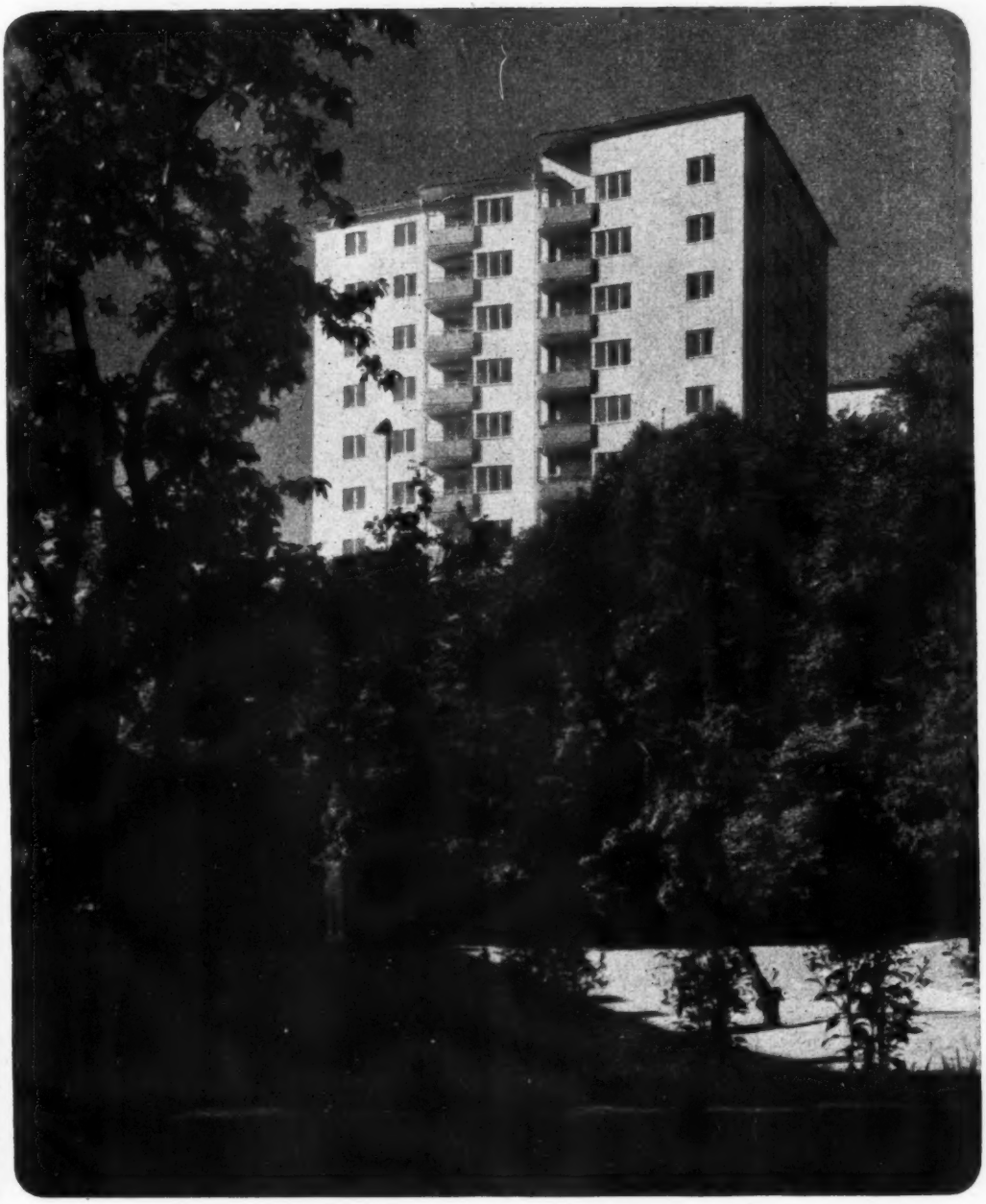
The different residential units of the town will all require the separate provision of many of these facilities as part of their individual social centres and early developments on these lines should be encouraged. On the other hand, I am equally in favour of encouraging the provision of a major focus in the centre which in many respects will include more highly developed facilities as an expansion of those provided in the individual residential units. This will assist in the major problem of keeping the whole town well knit together as a reasonably homogeneous entity with a growing tradition of its own. This can be done in a variety of ways; for instance, the repertory theatre in the town centre should become the chief rallying point of the dramatic societies in the different residential units, which will also have small halls with a stage at their disposal in the units in which their local efforts can be produced.

There are almost unlimited permutations and combinations of ideas which can be worked out on this fascinating and all-important subject, and I think it is important not to embark on it with any fixed ideas of what is good for the people, but to allow ideas to be the expression of the best interpretation of what appear to be the requirements.

The outdoor recreational facilities present an equally complex problem, since there will be various town teams, subsidiary residential unit teams, works teams, and a host of other groups all anxious to have playing fields, tennis courts, bowling greens, outdoor swimming pools for their different activities. There will be a need for at least one golf course. Side by side with these demands there will also be big demands for more passive forms of recreational enjoyment, which will be expressed in terms of a league football ground, rugby football ground, a cricket ground to which the county team can be invited, probably a greyhound racing track, or some other form of, to me, equally crazy entertainment.

Again, the provision of these facilities must start from the very beginning, and should march fully and generously in step with the rest of the development.

Finally, I ought perhaps to add that, as the town must provide human requirements from the cradle to the grave, the necessity for a substantial cemetery should not be overlooked.



A view from the east of one of the four new central blocks of flats on Reimersholme. Five more of these blocks, informally spaced, will eventually be built.

HSB FLATS

AT REIMERSHOLME, STOCKHOLM

Reimersholme is one of the many islands which form the Stockholm archipelago, and which provide the architect and planner with ideal and naturally articulated areas for creating neighbourhood units. The settings of these islands also give great scope to the visual planner with their rocky slopes, pine woods and tideless waters. At Reimersholme, great care has been taken to group the flat buildings in an informal way to harmonize with the natural contours of the island. For this layout, the town planning office of HSB, the co-operative building society, is responsible, under the architects Harry Egler and Fred Forbat. The landscaping and gardening with flowers, trees, undulating lawns, informal paths and steps, with here and there a piece of sculpture, has been carried out by Ulla Bodorff.

The tall flat blocks have been placed on the rocky heights, the lower buildings being near the shore. This grouping is accentuated by the colouring, the low buildings being of warm red and yellow and the high buildings of a colder bluey-green. A green belt of trees divides the high blocks from the low buildings. A number of small houses of standard prefabricated timber construction are being built on the island as well as flat blocks. These have a new

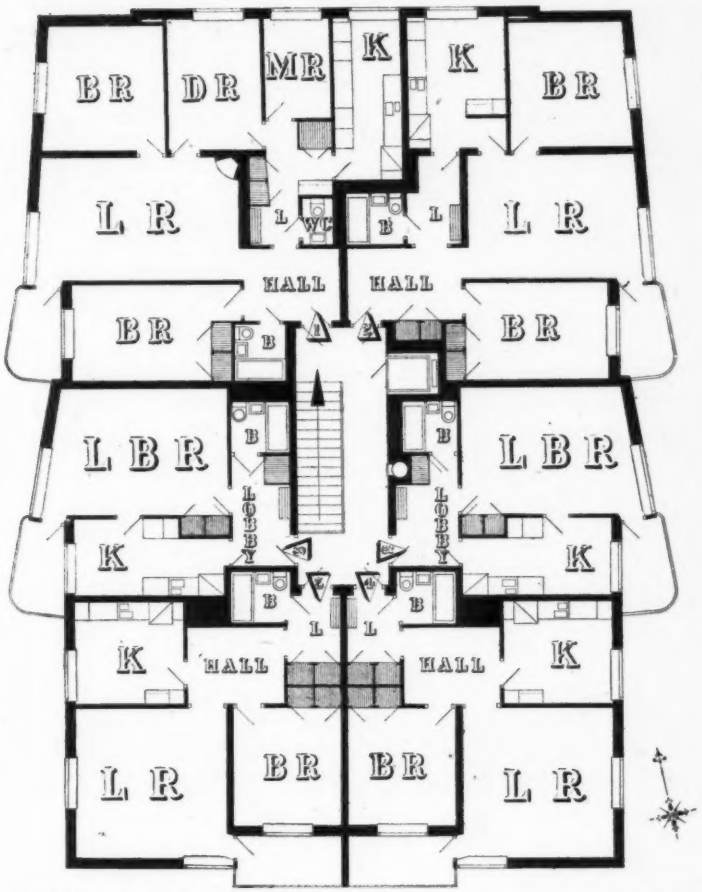
HSB FLATS AT REIMERSHOLME, STOCKHOLM

feature in that they avoid the usual semi-basement for stores and washing.

Four of the nine central blocks have so far been completed, of which a typical example is shown here. The sizes of flats vary on each floor between one room with kitchen and bathroom type to three rooms with kitchen and bathroom. One central internal staircase hall with lift serves all the flats—a common system in Stockholm. Also typical of Stockholm flats is the provision of balconies in every flat, all of which face south as a result of careful planning. All bathrooms, as is also usual, are internal, and are artificially ventilated, thus saving all external wall space for the other rooms. Each flat has ample internal cupboard space. The external finish of the blocks is colour-washed rendering.

The island has its own amenities such as small shops and a communal restaurant, and on the south are industrial buildings and warehouses, which being of low height and of unobtrusive appearance, do not spoil the view across the water from the flats on the central heights.

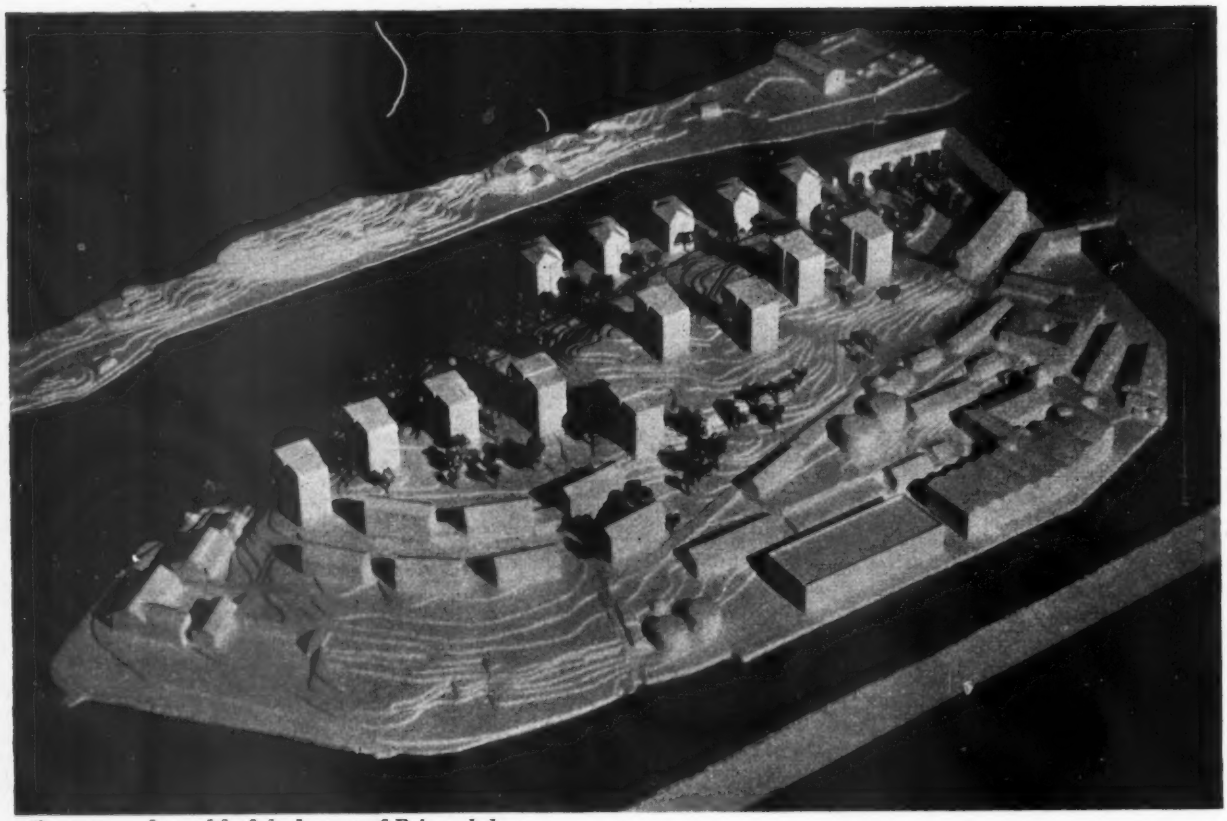
An interesting feature of the island is the restoration and conversion of the old, eighteenth century, manor house, called Anders Reimers Gord, into a communal nursery and creche with playrooms, dining room and other conveniences.



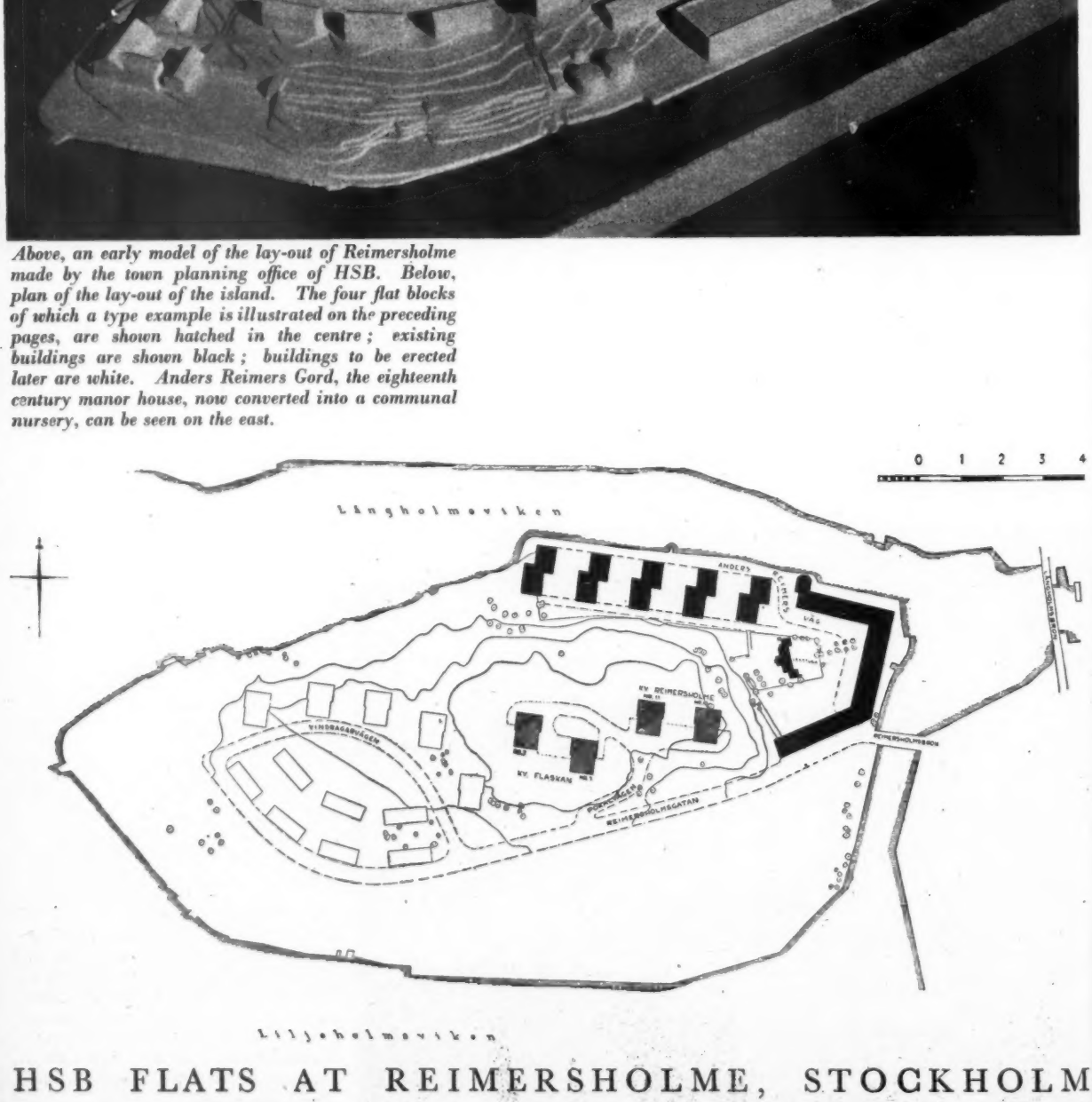
TYPICAL FLOOR PLAN

Scale: $\frac{1}{16}$" = 1' 0"

On facing page, view from the south of one of the central blocks of Reimersholme, with a typical piece of informal gardening in the foreground. Above, a typical floor plan. Left, the eighteenth century manor house on the island, now reconditioned and converted into a nursery and creche for the use of the local inhabitants.



Above, an early model of the lay-out of Reimersholme made by the town planning office of HSB. Below, plan of the lay-out of the island. The four flat blocks of which a type example is illustrated on the preceding pages, are shown hatched in the centre; existing buildings are shown black; buildings to be erected later are white. Anders Reimers Gord, the eighteenth century manor house, now converted into a communal nursery, can be seen on the east.



HSB FLATS AT REIMERSHOLME, STOCKHOLM

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

2307 — *New Schools*

PLANNING OUR NEW SCHOOLS. *Report of* 1945 *Conference of RIBA, National Union of Teachers, ABT* (*RIBA, NUT, ABT,* 1*s.* 6*d. Also partly reported in Architects' Journal, June* 7, 1945, *pp.* 429-431). Discussion of effects of 1944 Education Act on school building. Four sessions: 1944 Act and new building regulations; Nursery and Primary schools; Secondary schools; buildings for further education.

2308 — *RIBA School Report*

RIBA REPORT ON POST-WAR SCHOOL BUILDINGS. (*Architects' Journal, August* 23, 30, 1945, *pp.* 144-xlvi, *p.* 162.) Synopsis of report by special RIBA committee under following: General Problem; Architect's Contribution; Delays in Administrative Procedure; Methods of Construction, available Materials, and Supply of Labour (with Note on Wartime Hutting); Improvement of Existing Buildings.

2309 — *Crematoria*

CREMATION CEMETERIES. (*Architects' Journal, October* 4, 1945, *p.* 244.) Short historical survey of methods of disposal of the dead. Funeral management as a public utility to combat commercial exploitation. Garden of Remembrance as a living memorial instead of lifeless blocks of stone. Burial grounds a town planning problem. Cremation most sanitary and economic method of disposal. 125 acre cremation cemetery at Basle, Switzerland.

STRUCTURE

2310 — *The Wimpey House*

THE WIMPEY HOUSE. *Eric Collins, Consulting Architect.* (*The Builder, August* 31, 1945, *pp.* 169-173.) Open-front construction using no-fines concrete with brick-built front. Pair of pilot houses at Eastcote, Middlesex.

The side, back and party walls are 12 in. thick in no-fines concrete poured into a skilfully made formwork. The secret of the success of this scheme lies in the formwork. Units as large as the side of the house can be placed in position in one operation and the concrete poured very quickly in 8 ft. lifts. The external shuttering is erected in units of full height, the largest weighing 21 cwts. The inner box shutters are in two lifts. The first lift has been taken to the underside of the floor joists. The boxes act also as scaffold. The roof can be fixed on completion of the walls, allowing the work in connection with floors, partitions, etc., to be carried out under cover, and with the open front giving easy access for storing materials in the dry. One of the last operations consists of building a brick front. In the normal house only 13 per cent. of the brickwork above damp course is in the front wall. Thus nearly all the skilled bricklaying is saved. Apart from complicating the shuttering, *in situ* thin partitions have been avoided on the grounds of economy and speed. Breeze slab or hollow tile partitions can give the same result and provide an under cover job on wet days for the bricklayers doing the front. Instead of load bearing brick partitions a light intermediate steel frame is used, which allows greater flexibility in the arrangement of the rooms and allows the roof and first floor construction to proceed independently of the brick front.

The chief interest of the scheme is the saving of skilled man-hours.

2311 — *Coventry Houses*

EXPERIMENTAL HOUSES, COVENTRY. *D. E. E. Gibson, Architect.* (*The Builder, November* 2, 1945, *pp.* 346-348.) Framework composed of tubular steel members. See Nos. 1310: 2.12.43 and 1342: 30.12.43.

2312 — *Solar House*

SOLAR HOUSE OF FLEXIBLE UNIT CONSTRUCTION. G. F. KECK. (*The Architects' Journal, December* 6, 1945, *pp.* 411-414.) Standard parts of 3 ft. 3 in. width applied to variable plans of one storey solar-orientated house. Ducts for heating in floor tiles.

2313 — *Swedish Timber Houses*

SWEDISH TIMBER HOUSES. (*The Architects' Journal, December* 6, 1945, *p.* 410. *The Builder, July* 13 *and October* 19, 1945, *pp.* 28-30 *and* 312-313. *Architectural Design and Construction, December,* 1945, *pp.* 305-310.) Government ordered 5,000 prefabricated timber houses in Sweden. Details of design and construction of four types. Erection progress views. Thermal insulation about twice that of brick.

2314 — *Steel House System*

SYSTEM OF CONSTRUCTION FOR A HOUSE OF STEEL. *Max Lock & M. J. Blanco White, Architects.* (*The Architects' Journal, October* 4, 1945, *pp.* 245-248.) Light rolled steel frame with two-storey high verticals at 3 ft. 6 in. centres. Wall panels 14 g. steel sheets. Floor joists spanning full width. Roof pitched or flat, hipped or gabled.

2315 — *Station Building*

EXPERIMENTAL STATION BUILDING. *Designed by LMS Architects' Office.* (*The Architects' Journal, December* 6, 1945, *pp.* 415-419.) Steel framed building with awning, based on 3 ft. 4 in. grid. Continuous duct accommodating services round building. Wall panels below cill level in precast concrete, above in vitreous enamel. Wall linings: Metal faced plywood panels on a timber frame with glass silk backing.

2316 — *Repair*

REPAIR OF DAMAGED BUILDINGS. *Building Research Station.* (See No. 1843: 22.3.45.) Further leaflets issued free of charge. No. 15, *Patching of Iron Sheet and Asbestos Cement Roofing.* No. 16, *Removal of Camouflage Coatings, Blackout Paints and Anti-Scatter Treatment.* No. 17, *Shoring and other Precautions against the Collapse of Damaged Buildings and Adjacent Property.*

2317 — *Reckoners*

GUARANTEED MINIMUM RECKONERS FOR THE BUILDING & CIVIL ENGINEERING CONTRACTING INDUSTRIES. *B.S.* 1151, *Part* 2: 1945. (*British Standards Institution,* 1*s.* 0*d.*) Facilitates calculation of guaranteed minimum for men whose normal working hours are less than normal working hours laid down in Working Rule Agreements.

2318 — *Flush Wood Doors*

FLUSH WOOD DOORS. *B.S.* 459, *Part* 2: 1945 (*British Standards Institution,* 2*s.* 0*d.*) Design, dimensions, materials, construction, details, recommended method of glazing.

The purpose of this standard is to illustrate and describe an economical type of flush wood door with plywood faces that may be available from stock to meet normal housing requirements.

2319 — *Concrete Form Linings*

FORM LININGS FOR CONCRETE SURFACES. *H. V. Pittman.* (*Engineering News-Record, November* 1, 1945, *pp.* 584-588.) Fabric-covered ⅛ in. thick absorptive lining used at Norfolk Dam. Backing absorptive material with non-absorptive lining produced better surfaces at lower cost than use directly on wood sheathing.

2320 — *Underground Factory*

CONSTRUCTION OF AN UNDERGROUND FACTORY. *H. V. Lobb. ASB Lecture at RIBA, November* 7. (*The Builder, November* 16, 1945, *pp.* 387-390 *and other journals.*) Details of factory built under chalk escarpment. Method of excavation, cladding of walls and roof, ventilation.

The lecturer claimed that this factory, which is protected against the present-known forces of destruction, could be carried out at approximately the cost of a surface factory, taking into account the expenses necessary for the provision of black-out camouflage, air-raid shelters, etc. (Illustration see A. J., November 22, 1945, p. 371.)

2321 **Concrete Surface Finishes**

CONCRETE SURFACE FINISHES. (*The Reinforced Concrete Association, Technical Paper No.* 4, 1945. 2*s.* 6*d.*) Brief descriptions of variety of surface finishes, with notes on methods employed in their production.

The efforts of the concrete industry to produce attractive surfaces have hitherto been restricted by the lack of demand. The purpose of the brochure is to enlighten architects about the possibilities of leaving concrete surfaces exposed instead of the usual practice of concealing concrete. The various types of surface finishes are well illustrated. (See also 1048, 1049, 1050: 4.2.43.)

MATERIALS

2322 **Aluminium**

ALUMINIUM. *Lecture by Dr. E. G. West at a meeting of the Design and Industries Association.* (*The Architects' Journal, November,* 1945, *pp.* 343-346.) Spectacular increase in world production during the war. Groups of aluminium alloys, their physical and mechanical properties. Methods of manufacture. Surface finishings. Application in building and in transport.

2323 **Concrete Tiles**

CONCRETE INTERLOCKING ROOFING TILES. *B.S.* 550: 1945. (*British Standards Institution,* 2*s.* 0*d.*) Materials, dimensions, transverse and permeability tests and methods of testing. Suitable type of apparatus for transverse test.

This specification has been revised to bring it up to date for post-war building. It allows any surface texture or colour desired by the purchaser, whilst ensuring that the physical and mechanical properties of the tiles are satisfactory. An important feature is that the body of the tile shall be of such colour throughout that, in the event of injury to the surface, the exposed body shall not set up an unpleasing contrast.

2324 **Natural Stone**

NATURAL STONE FOR BUILDING. *B.S.* 1232: 1945. (*British Standards Institution,* 2*s.* 0*d.*) Dimensions and workmanship. Dimensioned building stone to be laid with ¼ in. joints and to bond with brick-work.

2325 **Copings**

COPINGS. *B.S.* 1233: 1945, *Clayware. B.S.* 1234: 1945, *Cast Concrete. B.S.* 1235: 1945, *Natural Stone.* (*British Standards Institution. Price* 2*s.* 0*d.*) Dimensions, workmanship. Tolerances.

2326 **Door Bolts**

IRON, STEEL AND NON-FERROUS DOOR BOLTS. *B.S.* 1228: 1945. (*British Standards Institution.* 2*s.* 0*d.*) Dimensions of 16 types. Primarily for houses.

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.*

2327 **Rotted Floor**

Q *I wish to renew a wood boarded floor which has rotted. The flooring is laid direct on concrete, and is now in a dangerous condition. What do you advise?*

A There are a few types of floor coverings available to-day, and to replace a rotted floor boarding now, it would be necessary to obtain a licence. We can, therefore, only advise you to remove the existing floor boarding and thoroughly clean off the surface of the concrete bed and lay an Anhydrite composition floor; the materials for this are made by Imperial Chemicals Institute, and are laid under various trade names by flooring specialists.

2328 **Registration**

Q *Can you tell me: If any application to the ARCUK for registration under its heading of Architectural Assistants has been turned down on the grounds that the required period of seven years as an Architectural Assistant had not been completed by a few months:—*

(1) *What ways and means are open to one still wishing to become registered at a later date?*

(2) *What examinations are recognised by the ARC as giving eligibility for registration?*

(3) *If a person, whose application has been turned down, has since been invalided out of the Forces, with a disability which prevents his taking the required examinations, can such a person become registered, and, if so, how?*

A From the particulars submitted, it appears that you can only qualify for registration by examination, but the ARCUK will, on request, send you a leaflet setting out all the grounds upon which prospective members can apply for registration.

The ARCUK will also let you have a list of the examinations recognized by the Council, but we may mention that the RIBA Final is one of them.

2329 **Double Glazing**

Q *Is there any method of preventing condensation between the two sheets of a double glazed window—such as by creating a vacuum? Are there any details available of standard timber double glazed windows both slide sliding and hung casements, as used on continent before the war, and, if so, from where could I obtain them.*

A Condensation between the two panes of double glazed windows can be eliminated if the air space between the two panes is hermetically sealed. Even this condition is liable to fail when the pressure differs due to changes of temperature, and the strength of most types of glass is insufficient to withstand a partial vacuum between two panes. It should be noted that the slightest leak would be liable to cause condensation and would require resealing.

America has developed double vacuum windows further than we, as in Thermopane glazing now on the market there.

A side-hung glazed sash in addition to the normal window with a friction tight joint, which could be opened on occasion to regulate pressure would facilitate the resulting condensation being wiped off.

Glass manufacturers have recently conducted a great deal of research on this subject, and would doubtless be willing to help you; The English Joinery Manufacturers Association, of Sackville House, 40 Piccadilly, London, W., and the British Metal Windows Manufacturers Association, of 21, Tothill Street London, S.W.1, would supply you with details of wood and metal windows designed for double glazing.

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.

DIA

A. H. Scroggs

At the Royal Society, W.1. A paper read to the Design and Industries Association on PLYWOOD, by Arthur H. Scroggs, Director of the National Plywood Corporation.

A. H. Scroggs: The fact that plywood has played such an important role throughout the war has prevented the civilian consumer from keeping abreast of developments which have taken place not only in manufacture but in application. We are, therefore, picking up the threads now.

HISTORY

It has been claimed that plywood was first made on a commercial scale in Revel, a little before the year 1900, being then used mainly for chair seats. It was available in this country shortly after this and its use as a substitute for solid timber increased, particularly for packing and in the manufacture of furniture.

The non-durable nature of the glues employed until the early 1930's held back

the use of plywood in positions exposed in any way to damp or extreme humidity. Furthermore, there is little doubt that because timber was used as a structural material centuries before stress calculations were employed, scientific methods were not adopted, neither was there any attempt to publish basic data as was done in the case of metal alloys. Nevertheless, many thousands of millions of square feet of plywood were used for an infinite variety of purposes between the two world wars. The advent of synthetic resin glues gave plywood its chance of becoming a truly modern material, but it was the impetus of this war which finally allied it to engineering principles.

TIMBER

The Northern timber zone, up to now, has provided most of the timber for plywood manufacture. Alder and white birch from Northern Europe and beech from Central Europe have been used in vast quantities. The Douglas fir giants of the Rockies and the Western slopes of the Cascades have fallen to the axe after a thousand years of resistance to storm, tempest, and in many cases fire, to be peeled into veneer for plywood manufacture.

Here we have extremes, the Douglas fir running up to three, four and five feet in diameter, over twenty thousand square feet of one sixteenth inch veneer from a single ten-foot log, and the North European birch with diameters around ten inches. This explains some of the differences in sizes available and systems of grading.

The Northern Hardwoods of the United States and Canada, which include yellow birch, maple, ash and elm, together with the Southern woods, such as sweet gum and yellow poplar, have been used in vast quantities. There are other timbers, too, which have found their way into plywood. There was luan from the Philipines, Australian hoop pine and okoume from French West Africa, to mention but a few.

We have to pay tribute to the yellow birch of the United States and Canada, which, in the form of plywood, has gone into battle. It has been favoured by designers of aircraft and other items of equipment where high stresses are involved, thus taking advantage of its high mechanical value.

In an effort to obtain increased supplies, it is inevitable that we should see a development of the timber of the tropical forests of the Colonies, a point which needs emphasising because consumers and designers will be offered plywood manufactured with timber, the names of which in many cases are quite unfamiliar to them but, none the less, reliable.

GLUES

There are several types of glue used in plywood production. Very large quantities have always been and still are made from soya bean and from casein, both of these are largely used cold but, with the admixture of certain reagents, they can be used on heated presses with a consequent speeding up of the gluing process.

During the last war, aircraft plywood was bonded with blood albumen. It is heat reactive and highly resistant to water, in fact it will pass the standard boiling test. It is, however, subject to mould growth and has been entirely superseded by the synthetic resin glues. For many purposes casein and soya bean glues are perfectly satisfactory but trouble has arisen in the past through their imprudent use in unfavourable positions. In certain circumstances, such glues are subject to mould growth and the plywood will then rot.

Synthetic resins were introduced about ten years ago and since then we have learned to appreciate the real value of resin bonded plywood. There are many kinds of resin glues and for plywood manufacture they are usually heat reactive. That is to say, the final curing or setting is caused by subjecting the plywood assembly, whilst under pressure, to temperatures from between ninety to one hundred and forty degrees centigrade according to the characteristics of the resin employed. Sometimes these resins are diluted or extended, as it is termed, by mixing in rye flour, wheat flour, walnut shell flour or blood albumen. Plywood manufactured with extended resin is perfectly satisfactory for interior use or in positions not subjected to continual or repeated dampness. It cannot be too strongly emphasized, however, that for exterior work, for humid conditions, or where there is excessive condensation, extended resins must be used with extreme caution. To illustrate the point I would refer to some plywood panels which I was shown recently taken from a railway coach ceiling lining. Although the plywood was painted on the face and it was used interiorly the glue had set up a serious mould attack, caused by moisture condensation. If resin bonded plywood had been used there would have been no trouble and it would have lasted longer than the coach.

Resin bond must be specified for all exterior purposes, for railway coaches, road transport construction, unless it is covered, for ships, small craft, aeroplanes, etc. Gradually these modern materials are being standardized and for the benefit of consumers and manufacturers alike there is now a British Standards Specification for resin adhesives calling for certain type tests which ensure the use of the correct resin glue for particular purposes.

To summarise: There are many kinds of resin glues and for plywood manufacture they are mostly heat reactive. For general purposes, the species of timber is relatively unimportant; the choice of the correct type of glue depending on the conditions under which the material will be used is absolutely vital; for furniture, or where the plywood is covered and for most interior positions, glues of the soya bean and casein type are adequate or extended resins may be used. On the other hand, exposed positions, or where there is continued damp, humidity or condensation, resin glue is essential.

MANUFACTURE

Plywood manufacture is an interesting and complex subject. Particularly so because it involves the handling of a live material, timber, of varying types, and an efficient plywood operation involves a balanced combination of timber technology, engineering and chemistry. In the modern application of the material, there is unlimited scope for the designer and stress engineer.

Veneer for plywood is nearly always rotary cut, that is to say, the log is held in chucks as in a lathe and rotated against the knife which peels off the required thickness of veneer in one continuous length. Briefly the veneer is then clipped to the required dimensions and mechanically dried. In the elimination of natural defects, the veneers have some times to be clipped to comparatively narrow widths and these pieces are then jointed up into larger widths on special jointing machines. Although plywood made with rotary cut veneers must sometimes have unjointed faces for the sake of appearance, the number of joints makes no difference to efficiency as has been proved, beyond doubt, by mechanical tests.

There are some other factors in the manufacturing process of interest to the consumer. For example, when the glue employed requires a high temperature for curing, it is most important that a reasonable equilibrium of moisture content is established by a suitable conditioning process. In order to provide a standard in this respect, most specifications stipulate a minimum and maximum moisture content for the finished material.

Whilst on the subject of sizes, I would remind you that extra large sizes can be provided by scarf jointing; a joint which is as strong as the plywood. A scarf joint is normally made by cutting a bevel to a slope of one in twelve on the two edges to be joined, which are then bonded together with resin glue.

GRADING

In view of the variety of species and qualities of timber used for the manufacture of plywood, there are always a number of different grades available.. The grading rules are usually designed to cover not only natural defects which are unavoidable, but certain manufacturing defects. You should not be misled by the many and varied descriptions, and for the purpose of selecting suitable material for the job in hand, the various grades for each face could be limited to about four.

It is most important to determine whether the plywood is well glued to the standard described and suitable in that respect for the purpose intended. British, Canadian, and American plywood is now broadly divided, as regards gluing, into two types, interior and exterior, and governed by certain standard tests.

So far as the general grading is concerned, it is to be hoped that in course of time, it will be possible to obtain some measure of standardization of the descriptions which must, in the past, have been extremely confusing to consumers. Whatever description may be adopted, the general requirements are these:

1. In the case of rotary cut outer veneers which are to be polished, the faces would normally be unjointed and free from natural or other defects.
2. For general high grade panel work for veneering or painting, the outer face should be of firm sound veneer, free from open defects but permitting any number of veneer joints.
3. In many cases of general construction work, whether the faces are to be veneered or painted, the outer face of the plywood will not only contain an unlimited number of joints but also open defects which have been effectively repaired with inserted veneer patches.
4. Finally there is the grade which permits open defects and which is used for constructional purposes where appearance is unimportant or the plywood is covered.

The number of grades is increased by having the two faces of the plywood different and by detailed modifications of the general principles which I have outlined. The maximum number of grades by combining the faces would be ten, but for practical purposes could be limited to seven or eight, in fact, one important plywood producing country does normally sell seven grades.

PURPOSES

The many purposes for which plywood is employed are familiar to everybody, but so much has been written about its new forms and uses that it might have appeared to be an entirely new substance in which wood plays no part. Essentially it is wood, although recently we have had the benefit of synthetic resins used either as an adhesive or to impregnate the wood, thereby obtaining greater stability and increased strength values.

There is little doubt that it will in future be used in even larger quantities for the manufacture of furniture, radio and gramophone cabinets, for certain items in motor construction, film studio and theatre sets, for doors, general joinery and the building trade. It is a standard material for ships' bulkheading, cabin doors and panellings, and rail and road transport construction. In every field designers have appreciated the ease with which large areas are conveniently covered, with the provision of plain surfaces free from distortion.

The designer in these cases concerns himself primarily with general robustness and ability to withstand ordinary usage, although in some instances a certain amount of stressing may be necessary. The question of panel stiffness arises in plywood buildings, and when used as shuttering for concrete formwork a peculiarity of timber must be taken into account due to contact with wet cement. An increase in moisture content and in duration of load decreases the stiffness of wood and so corrections are necessary to calculations based on the modulus of elasticity determined by short static tests on dry plywood.

NEW PRINCIPLES

Now perhaps I can pass on to some of the new principles, which I have termed Plywood Engineering. During the war there has been an increase in the adoption of plywood as a load bearing material and incorporated in designs with a knowledge of its mechanical performance. In common with many other materials, the more scientific use of plywood, both here and in America, has been encouraged by shortages in other directions. I do not think this should be regarded as a temporary measure but a recognition of its rightful position as an engineering material, demonstrated by the fact that it has been made to take stresses and used under conditions never before thought possible.

The necessity of conserving timber during the war led to a study of the effects of timber defects upon the strength of plywood. The work carried out a few years ago by the Forest Products Laboratory at Princes Risborough demonstrated that the effect on panel shear strength and rigidity of certain natural defects was to decrease the ultimate possible loads by only a few per cent. The curious fact emerges that freedom from timber defects and such mechanical faults as splits and open joints are of greater significance for appearance than for strength.

Plywood is most effective at least in the lower range of thicknesses when used as a structural diaphragm as a bracing or where plate action with all edges supported is involved. An essential feature of a modern plywood structure is a resin glued joint between the plywood and supporting framing, which has the effect of distributing the load and taking care of stress concentrations due to change in dimensions. This principle is applied to non-stressed as well as to stressed units and the cavities between the framework are sometimes filled in with stringers or a low density material to stabilise the plywood skin to provide insulation or to obtain greater stiffness. When designs incorporate unit construction of this type there are three main advantages:—(*a*) The material is used in the most efficient manner; (*b*) the units can be jig built to great accuracy; (*c*) time is saved in final assembly or erection.

This sort of thing has been called prefabrication and hailed as a new discovery. It is not new. The furniture industry, for example, have used laminated panels for years. Gradually this system of unit construction has been extended and is very well illustrated by the construction employed for the fuselage of the De Havilland Mosquito. It consisted of a relatively thick, light weight, low strength core, in this case it was balsa wood, faced with thin high strength birch plywood. The primary function of its low density core is to stabilize the thin faces, to enable them to develop as great a proportion as possible of their ultimate strength with an absence of buckling. For this purpose the core must be sufficiently strong to avoid tension failure perpendicular to the face. The core material must also be sufficiently rigid in shear to support the sandwich structure before the faces develop their full strength. Finally, as in all plywood composite panels, the adhesion between the faces and core must be of the highest order and as strong as the materials being bonded. For this type of construction various substances have been used for the cores, including foamed resins, calcium alginate, expanded rubber, as well as natural materials such as balsa wood or cork.

An interesting development in plywood composite is what has been called stringer board. This consists of a series of thin continuous laminated stringers combined with a series of thin laminated spacers at right angles, similar to the section which I have here. This core is faced on both sides with either veneer or plywood; the finished composite panel being extremely strong for its weight. A panel $\frac{7}{16}$-inch thick with a balsa wood core and $\frac{1}{16}$-inch birch faces made on the principle of the Mosquito fuselage failed in bending at 538 lb. per square inch, giving a strength weight ratio of 640. A stringer board of the same thickness and practically the same weight failed at 1,025 lb. per square inch, giving a strength weight ratio of 1,170. With the addition of twenty-eight gauge Alclad the bend failure was 1,280 lb. per square inch, the strength weight ratio being 1,280 against 1,170 for the plywood faced stringer board and 640 for the plywood faced balsa wood.

Stress calculations will determine what type composite or stringer board should be used for a particular job, although being timber, these structures are still what the Americans would call Marginal Materials, but with far less margin than has been the case previously with timber structures.

A question which has often been asked by designers is "What is the effect of continued vibration on plywood?" First of all, provided the adhesion is satisfactory from all other standpoints, the effect on the glue line is negligible. Generally speaking the properties of timber in this direction are good, and from the results of extensive tests undertaken in the United States, it can be stated that the fatigue factor, due to continual vibration, can be ignored.

APPLICATIONS

As to application, I should give you just a few examples. In the first place, like everything else, they have their own particular fields. The stringer board, for example, by reason of its construction, is somewhat expensive and its use would hardly be justified in cases where high strength for low weight is unnecessary. To illustrate the point, I would mention that stringer board only one inch thick was used as the top surface of ramps for loading Bofors guns and similar equipment into air transports. On the other hand, an internal non-structural bulkhead in an aircraft which has to be light can be much more cheaply and easily made with a composite having an expanded rubber or balsa wood core, faced with thin plywood.

These composite materials can also be formed into partitions for lavatories, cooking galleys and all manner of fittings in air, sea or land transport where it is desired to save weight with the added benefit of unit construction.

As a structural medium, many uses could be suggested, and I would mention that of a 'bus or railway carriage roof. A plywood sandwich having a balsa wood or expanded rubber core can be supplied in one or two pieces as convenient, moulded to shape and fitted to the 'bus without any further work, other than the attachment to the sides. Cellboard with an added overlay of thicker plywood to take local loading and hardwear is a most suitable material for forming the floor-cum-ceiling of a two deck motor 'bus. There are other uses for sandwich boards, such as elevator cars, food containers for tropical transport, caravans, etc.

Another form of unit construction of great importance today is applicable to the building trade. It consists of lumber battens spaced at regular intervals and faced on both sides with plywood. A well glued joint between the battens and plywood is essential preferably with a synthetic resin applied under positive pressure, and, for the sake of accuracy, the whole structure should be made in a jib. For flooring-cum-ceiling panels of a one storey house, a twelve foot span can be made by using 6-inch by $1\frac{1}{2}$-inch timber joists at 12 inch centres, faced on the underside with $\frac{3}{8}$-inch plywood which forms a ceiling for the lower room and with $\frac{1}{2}$-inch plywood on the top face which forms the flooring of the upper room. The units, which may be in convenient widths and as long as the span required, can be delivered to a building site ready to place in position. Such a panel will carry normal building loads. It is necessary for the top surface to be half-inch thick to take point loadings up to two hundred pounds. Of great advantage is the fact that these units can be built into any type of house construction and are applicable to roof members as well as to partitions and walls, thermal and sound insulation being provided as necessary. All services can be buried in the follow panels with access covers.

RIBA Examinations

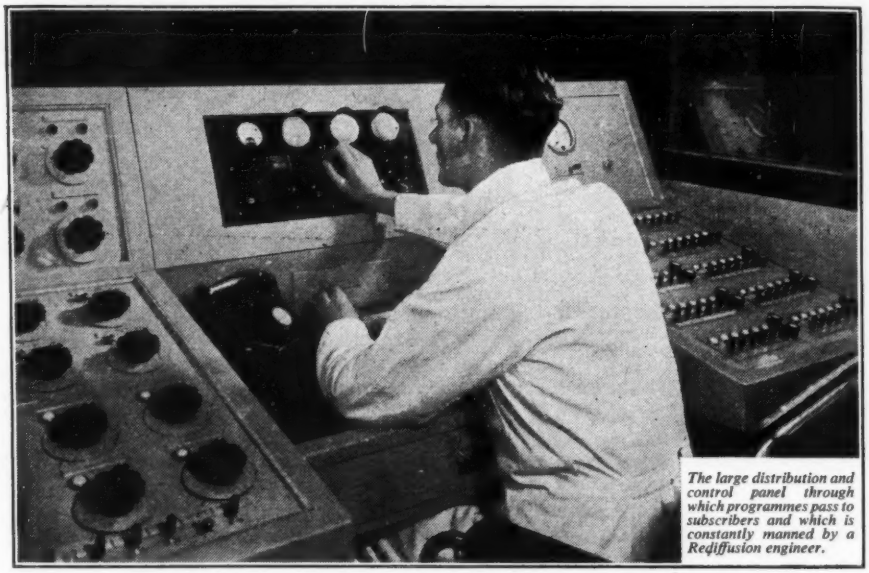
The RIBA Intermediate Examination was held in London, Manchester, Newcastle, Edinburgh and Belfast from November 9 to 15, 1945. Of the 137 candidates examined, 50 passed and 87 were relegated. The successful candidates are as follows:—

Baldwin, Kenneth; Barry, Robin L.; Bolton, Gerald V. (subject to approval of remaining Testimonies of Study); Busbridge, Pauline (Miss); Clayton, John C.; Crane, Gerald E.; Cunnington, Pamela M. (Miss); Deacon, Desmond R.; Ellis, Eileen M. (Miss); Evans, John D.; Fidler, Donald M.; Fulbeck, John C. W.; Gatoff, Maurice; Gear, Leslie A.; Gibson, George K.; Goodman, Peter S.; Gregory, Patrick B.; Guaschi, Eric J.; Hall, Noel B.J.; Harrington, Frank H.; Heppell, Stuart A.B.; Herring, Mary (Miss); Hill, Perry M.; Holland, Thomas N.; Hughes, Kenneth S.; Hutchings, Lois M. (Miss); Jackson, Brian W.; Jacob, Christopher H.; Jones, Alan C.; Kenmuir, Herbert E.; Leaker, Dudley R. (subject to approval of remaining Testimonies of Study); Lyons, Richard E. P.; Millin, Norman C.; Mills, Denis L.; Mitchell, James H.; Moorby, Richard P.; Petter, Ernest T.; Porter, William D.; Reid, Donald A.; Robinson, Edmund J.; Robjohns, Arnold F.; Sawyer, Richard L.; Slater, Dennis C.; Smart, John H.; Sowerby, John G. (subject to approval of remaining Testimonies of Study); Stafford, Leonard J.A.; Stephenson, Robert; Stickings, Joyce D. (Miss); Tischler, Hans P.; Tompkins, Jeanne M. (Miss) (subject to approval of remaining Testimonies of Study).

The following candidate has also completed his qualifications and has now passed the Intermediate Examination:—Kingham, Norman F.

At the RIBA Examination for the Office of Building Surveyor under Local Authorities held on May 2, 3 and 4, 1945, six candidates presented themselves and the following were successful:—Percy Fletcher, Robert D. Jee, Arthur Wright.

At the examination for the RIBA Diploma in Town Planning held in July, 1945, the following were successful and have been awarded the RIBA Diploma in Town Planning:—Clark Fyfe; William Thomas Glare; Peter S. Leask; John Stevenson; Alfred E. Williams.



The large distribution and control panel through which programmes pass to subscribers and which is constantly manned by a Rediffusion engineer.

Radio Listening to be clearer and simpler in the future

IN the future, radio entertainment will develop more and more on a system already bringing new reception experience to thousands of fortunate listeners in certain areas. They have no hunting for stations, no hair's breadth adjustments of the tuning dial to cut out unwanted stations, no irritating crackling and distortion to interfere with their listening. Just a simple movement of a switch from one position to another gives them the programmes they require.

This is not yet a feasible proposition for listeners everywhere, but Broadcast Relay Service Ltd. are already operating a service which brings radio into the home by private direct lines from the B.B.C. studios.

Subscribers to this service are thus sure of the best reception of radio. They can select the Home or Light programme, confident that the reproduction will be the exact counterpart of the studio performance. And selected programmes from world radio stations are also available to them.

Rediffusion also equips factories for announcements and music

REDIFFUSION

BY BROADCAST RELAY SERVICE LTD.

CARLTON HOUSE, REGENT STREET, LONDON, S.W.1

serves the following areas:

BANGOR (CO. DOWN), BARGOED, BARROW, BLACKPOOL, BROADSTAIRS, DARLINGTON, EXETER, GATESHEAD, HULL, KENDAL, LANCASTER, MAIDSTONE, MARGATE, MERTHYR, MORECAMBE, NEWCASTLE, NEWPORT (MON.), NORTH AND SOUTH SHIELDS, NOTTINGHAM, PLYMOUTH, PONTYPRIDD, RAMSGATE, RHONDDA VALLEY, ROCHDALE, ROTHERHAM, ST. HELENS, STRETFORD, SUNDERLAND, SWANSEA, WALLASEY, WALLSEND, WHITLEY BAY, WOLVERHAMPTON, and also in MALTA and TRINIDAD.

ANNOUNCEMENTS

Flight-Lieutenant Edward Donati, A.R.I.B.A., has been released from the Forces and resumed practice at 13, The Parade, Minehead (Tel. 804). He has been appointed architect for the Williton R.D.C. Post-War Housing Scheme and will be glad to receive trade catalogues.

Mr. David Hooper, A.R.I.B.A., has resumed practice, carrying on the business known previously as Messrs. V. Hooper & Son, at 67, High Street, Reigate, Surrey, where he will be pleased to receive trade catalogues, etc.

Mr. D. E. Morrison, B.A.(ARCH.)HONS., A.R.I.B.A., is now in private practice and his offices are temporarily at 3A, Heathway Court, Finchley Road, N.W.3 (telephone SPEedwell 1996). He will be pleased to receive trade catalogues, particularly in connection with housing.

The Copper Development Association, which during the war operated principally from a temporary office in Rugby, has now acquired premises at Kendals Hall, Radlett, Herts. All urgent communications and applications for the Association's literature should be addressed, in future, to Radlett. The Association will continue to maintain its registered address at Grand Buildings, Trafalgar Square, London, W.C.2.

Messrs. Allom Bros. Ltd. announce that Maurice and Donovan Allom have returned from the RAF and that Mr. Waldo Maitland, A.R.I.B.A., now released from the Royal Navy, has joined the firm. The company's offices are at their factory in Lombard Road, S.W.19, where enquiries should be adressed. Telephone numbers Liberty 3242 and 5572.

Mr. Clifford Worthington, A.R.I.B.A., F.R.S.A., has commenced practice at No. 7, Clarendon Place, Maidstone, where he will be pleased to receive general trade catalogues.

Mr. Peter L. H. Wakefield, A.R.I.B.A., has been released from the Army to undertake housing work in the West of England in association with Mr. G. Blair Imrie, F.R.I.B.A. Pending his return to practice in Bristol his temporary office address is c/o G. Blair Imrie, F.R.I.B.A., Teffont Magno, Wilts.

Mr. A. J. Russell Green, Architect and Surveyor, has reopened an office in Queens Chambers, 214, High Street, West Bromwich, where he would be glad to receive trade catalogues, etc.

Messrs. Pite Son & Fairweather, Chartered Architects, announce that from January 1 their London office address is at 6, Queen Anne's Gate, Westminster, S.W.1. (Telephone: Whitehall 5576), and all correspondence should be addressed there. The Branch Office at 16, Market Square, Westerham (Tel.: Westerham 78) will be retained until further notice.

The Minister of Works has appointed the following Regional Directors:—Leeds, Mr. William Mathieson; Nottingham, Major-Gen. H. B. W. Hughes, D.S.O., O.B.E.; Cambridge, Brig. Rawdon Briggs, C.B.E., D.S.O., M.C.; London, Brig. G. B. Gifford Hull, O.B.E., D.S.O.; Reading, Major-Gen. G. L. S. Hawkins; Bristol, Capt. C. A. H. Kitchiner; Cardiff, Dr. D. J. Roberts, B.SC., PH.D.; Birmingham, Brig. H. N. North; Manchester, Mr. Stewart Owler; Tunbridge Wells, Mr. S. J. Egerton Banks.

Mr. E. Donald Haigh, A.R.I.B.A., A.M.T.P.I., Chartered Architect, and Capt. J. C. Dance, Quantity Surveyor, having been released from the Services, have commenced practice under the style of Haigh & Dance, Architects and Surveyors, at 14, Finkle Street, Kendal, Westmorland. Trade catalogues would be appreciated.

Mr. Daniel J. MacRandal, A.R.I.B.A., has opened an office at 1, Queen Street, Belfast. and would be glad to receive trade catalogues, etc.

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, 2s.; 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, HAYOR PLACE, LONDON, S.W.1. TEL.: SLOANE 5613. 991

DEVON COUNTY COUNCIL.

SENIOR TOWN PLANNING ASSISTANT.

Applications are invited for the above permanent appointment on the staff of the County Planning Officer, at a salary in accordance with Grade D of the Council's scale, commencing at £450 per annum, and rising by annual increments of £20 to £510 per annum, plus cost-of-living bonus (at present £59 16s. per annum).

Applicants should, by examination, be Corporate Members of the Town Planning Institute, and preference will be given to those who, in addition, possess architectural qualifications. Practical experience in the preparation and administration of planning schemes for urban and rural areas is essential.

The appointment will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Act, 1937. A medical examination will be necessary.

Applications, stating full particulars of age, qualifications, experience, and present and past appointments, accompanied by copies of three recent testimonials, must be submitted to the undersigned by not later than the 31st January, 1946.

A. J. WITHYCOMBE,
Clerk of the Council.

The Castle, Exeter.
22nd December, 1945 534

CITY OF CARDIFF.

Applications are invited for the appointment of SENIOR TOWN PLANNING ASSISTANT, in the Department of the City Surveyor, at a salary of £550, rising by two annual increments of £20, and one of £10 to £600 per annum, plus war bonus, which at present amounts to £59 16s. per annum.

Applicants should hold the qualification A.M.T.P.I., and should in addition have the further qualification of A.M.I.C.E., A.R.I.B.A., or P.A.S.I. They must have had considerable experience in the preparation and administration of Town Planning schemes.

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

Applications, stating age, qualifications, and experience, etc., together with the names of three persons from whom reference can be obtained, should reach the undersigned not later than Monday, the 21st January, 1946, suitably endorsed.

The permanent appointment for the above is vacant, but in order to comply with a resolution of the Council, the appointment, when made, will be regarded as temporary during the period of the present emergency.

S. TAPPER JONES,
Town Clerk.

City Hall, Cardiff.
29th December, 1945. 555

SURREY COUNTY COUNCIL.

ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant in the County Architect's Department.

Applicants should be members of the R.I.B.A. and of good training. The salary offered is £400 per annum, rising by annual increments of £20 to £500 per annum, with the addition of war bonus at the rate of 23s. per week.

Applications, stating age, qualifications, and previous experience, with copies of two recent testimonials, should be addressed to the County Architect, Surrey County Council, Kingston-on-Thames, and received not later than the 26th January, 1946.

DUDLEY AUKLAND,
Clerk of the Council.

County Hall, Kingston-on-Thames, Surrey. 552

COUNTY BOROUGH OF BURY.

Applications are invited for positions as ARCHITECTURAL ASSISTANTS, at salaries in accordance with the scale of the Lancashire and Cheshire Provincial Council: Grade "A," £230×£15—£275; Grade "B," £285×£15—£315; Grade "C," £320×£15—£360; plus cost-of-living bonus, at present £59 16s. per annum.

Applications, stating details of training qualifications and experience, together with two references, must be forwarded to the Borough Engineer, Bank Street, Bury, not later than Saturday, 19th January, 1946.

Canvassing, either directly or indirectly, will be a disqualification, and candidates must state in their application whether they are related to any member or senior officer of the Council.

EDWARD S. SMITH,
Town Clerk.

Municipal Offices, Bank Street, Bury.
31st December, 1945. 553

COUNTY ARCHITECT'S DEPARTMENT.

TOWN PLANNING ASSISTANT.

Applications are invited for the appointment of Town Planning Assistant, in the County Architect's Department, at a salary of £400, rising by increments of £20 to a maximum of £469 per annum.

Candidates should hold the Diploma of the Joint Town Planning Examination Board, and must have had experience in the preparation of statutory schemes in the planning office of a local authority.

Applications, with copies of three recent testimonials, should be lodged with the undersigned not later than 21st January, 1946.

J. W. McKILLOP,
County Clerk.

County Buildings, Inverness.
28th December, 1945. 550

BLACKWELL RURAL DISTRICT COUNCIL.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Architectural Assistant. Salary £350, rising by £25 to £400, plus cost-of-living bonus.

Candidates must be holders of recognised professional qualifications, and be accustomed to making surveys, taking levels, preparing plans, and other incidental work in connection with the Council's housing schemes.

The post will be subject to the Local Government Superannuation Act, 1937, and will be terminable upon one month's notice on either side.

The successful candidate will be required to pass a medical examination.

Applications, stating age, experience, and details of National Service (if any), together with copies of three testimonials, should reach the undersigned not later than Monday, the 21st January, 1946.

R. EVANS,
Clerk to the Council.

Dale Close, 100, Chesterfield Road South, Mansfield, Notts. 549

CITY OF ROCHESTER.

ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the City Surveyor's Department, at a commencing salary of £400 per annum, plus cost-of-living bonus (at present £60 per annum).

Candidates should be Associates of the Royal Institute of British Architects, and have had good general experience particularly in the preparation of drawings, specifications, and quantities for Municipal Housing Schemes.

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

Applications, stating age, qualifications, and experience, accompanied by copies of three recent testimonials, to be delivered to the undersigned not later than 21st January, 1946.

W. LAW,
City Surveyor.

King Edward Road, Rochester.
27th December, 1945. 545

RAWMARSH URBAN DISTRICT COUNCIL.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment, at a salary of £400 per annum, plus bonus, at present £59 16s. per annum.

Applicants must be Registered Architects, and have considerable experience in the preparation of drawings and specifications for Public Works and Housing in particular.

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

Applications, stating age, qualifications and experience, together with two recent testimonials, must reach the undersigned not later than 21st January, 1946.

J. R. S. CREIGHTON,
Engineer and Surveyor.

Rawmarsh Urban District Council, Council Offices, Parkgate, Yorks, W.R.
20th December, 1945. 539

CITY OF COVENTRY.

CITY ARCHITECTURAL DEPARTMENT.

The Corporation of Coventry invites applications from qualified persons for the following appointments in the City Architectural Department.

Permanent whole-time appointment of SENIOR QUANTITY SURVEYOR; salary commencing at £360, and rising annually by £10 to a maximum of £400. Salary increments are subject to satisfactory service.

Temporary whole-time appointments of ASSISTANT QUANTITY SURVEYORS; salaries according to qualifications and experience, but not exceeding £450.

The above posts are subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Acts, as amended in regard to annuities to widows by the Coventry Corporation Act, 1936, and a satisfactory certificate will be requisite from the Council's medical referee.

The person appointed as Senior Quantity Surveyor will also be required to contribute to the Coventry Municipal Officers', Widows' and Orphans' Pension Fund.

The posts will be subject to the Council's cost-of-living war bonus, which may vary, but which at present amounts to 23s. per week for men, and 18s. 6d. for women.

Applications, giving particulars as to age, training, qualifications and experience, should reach the undersigned not later than Wednesday, the 23rd January, 1946.

Applicants must state for which post they wish to apply.

Canvassing, directly or indirectly, will be a disqualification.

D. E. E. GIBSON, M.A., A.R.I.B.A., A.M.T.P.I.,
City Architect.

1a, Warwick Row, Coventry.
10th January, 1946. 565

SURREY COUNTY COUNCIL.

JUNIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of a Junior Architectural Assistant, in the County Architect's Department.

Applicants should have had training in architectural work. The salary offered is £270 per annum, rising by annual increments of £10 to £330 per annum, with the addition of war bonus at the rate of 23s. per week.

Applications, stating age, qualifications, and previous experience, with copies of two recent testimonials, should be addressed to the County Architect, Surrey County Council, Kingston-on-Thames, and received not later than the 26th January, 1946.

DUDLEY AUKLAND,
Clerk of the Council.

County Hall, Kingston-on-Thames, Surrey. 551

BOROUGH OF MALDEN AND COOMBE.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments on the Council's permanent staff :—
(1) CHIEF ENGINEERING ASSISTANT (Grade D) £465×£20—£525 per annum.
(2) SENIOR ENGINEERING ASSISTANT (Grade C). £400×£15—£445 per annum.
(3) TOWN PLANNING ASSISTANT (Grade C). £400×£15—£445 per annum.
(4) SENIOR ARCHITECTURAL ASSISTANT (Grade C). £400×£15—£445 per annum.
(5) ARCHITECTURAL ASSISTANT (Grade B). £340×£15—£385 per annum.

A temporary cost-of-living bonus, at present £59 16s. per annum, will be paid in respect of each appointment, and all appointments will be subject to the provisions of the Local Government Superannuation Act, 1937.

Applicants for appointments 1, 2 and 3 must have had previous municipal experience, and the qualifications required for the appointments are as follows :—

(1) A.M.I.C.E. and A.M.I.M. & Cy. E. General administrative experience.
(2) A.M.I.C.E. and A.M.I.M. & Cy. E. Experienced roads, bridges, and sewerage.
(3) A.M.T.P.I., and in addition a recognized qualification as an architect, surveyor, or engineer. The applicant must also have had experience in the preparation and administration of planning schemes.
(4) A.R.I.B.A., with experience in the design of public buildings.
(5) Must have completed a regular course of training, leading to an appropriate professional qualification, and be experienced in housing work.

Successful candidates will be required to undergo a medical examination.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, should be delivered suitably endorsed to the Borough Engineer, Municipal Offices, New Malden, not later than Saturday, 26th January, 1946, and should disclose any relationship with members or senior officers of the Council.

The Ministry of Labour and National Service have given permission under the Control of Engagement Order, 1945, for the advertising of the vacancy of Chief Engineering Assistant (E.2265X) and Senior Engineer Assistant (E.2266X).

HAROLD E. BARRETT,
Town Clerk.

Municipal Offices, New Malden, Surrey.
29th December, 1945. 553

CORNWALL COUNTY COUNCIL.

Applications are invited for the permanent appointment of ASSISTANT BUILDING INSPECTOR, in the County Architect's Department.

Salary £515, rising by annual increments of £15, subject to satisfactory service, to £360 per annum, plus cost-of-living bonus, at present £59 16s.

Applicants must have held a similar appointment and possess practical experience of the building trade, be thoroughly competent in the preparation of specifications, detailed estimates and reports, and in the supervision of maintenance works and improvements to buildings.

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 Wednesday, the 16th January, 1946, accompanied by copies of three recent testimonials.

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

County Hall, Truro.
December, 1945. 532

NEWMARKET URBAN DISTRICT COUNCIL.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant, in the Architect's Department, at a salary of £240, rising by annual increments of £15 to a maximum of £300, plus war bonus, amounting at present to £59 16s. per annum. The appointment will be on the temporary staff in the first instance, but there may be a possibility of permanency at a later date. The Council are prepared to find the successful applicant housing accommodation in the district, should he be married. Applicants should have had experience in the preparation of plans, specifications, and quantities for public and domestic buildings. Preference will be given to persons who have passed R.I.B.A. Intermediate Examinations, or its equivalent, and who have had experience in the preparation of housing schemes.

Applications, endorsed "Architectural Assistant," stating age, qualifications and experience, past and present appointments, accompanied by copies of three recent testimonials, must be submitted to the undersigned not later than Friday, the 25th January, 1946.

JOHN CRABB,
Clerk of the Council.

Stratford House, Old Station Road,
Newmarket, Suffolk. 566

REGIONAL PLANNING OFFICER IN THE MINISTRY OF TOWN AND COUNTRY PLANNING.

A vacancy is announced for a Regional Planning Officer on the permanent establishment of the Ministry of Town and Country Planning. The salary scale is £1,000-£1,200, plus war bonus, and the post is pensionable. Candidates should hold a recognized qualification in architecture, engineering or surveying, should preferably be members of the Town Planning Institute, and must have wide planning experience.

Candidates should write to The Secretary, Ministry of Town and Country Planning, 32, St. James's Square, S.W.1, marking the envelope R.P.O., for full particulars and the necessary forms of application, which should be returned completed on or before 16th February, 1946.

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Architectural Appointments Vacant

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

Wherever possible prospective employers are urged to give in their advertisement 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.

CHIEF ASSISTANT required immediately for busy Yorkshire office; general experience in design, planning and surveying, with knowledge of quantities necessary, for housing, factory, banks, hospital, and domestic work, etc. Apply, stating age, salary, references, and when at liberty. Box 517.

ARCHITECTURAL ASSISTANT required for Engineer's Department of a Mersey Port Authority; applicants must be experienced in the design and estimating of costs of industrial buildings, including modern welfare schemes; good and permanent conditions of service and salary in accordance with ability and experience. Box 516.

CHARTERED ARCHITECT required as Assistant in Architect's Department of large Multiple Company; must be thoroughly conversant with office routine in connection with general repairs and maintenance; state age, qualifications, and salary required.—Box 548.

BUILDING DRAUGHTSMAN required for works engineer's department; fully experienced in building construction, preparation of specifications and estimates, and general maintenance single and multi-storey buildings. Apply, stating age and fullest details of training and experience, to The Gramophone Co., Ltd., Personnel Department, Hayes, Middlesex. 556

ASSISTANT required, with experience and interest in contemporary architecture and design, for progressive office near Kingston (½ hour from Waterloo); position offers exceptional opportunities. Also required: Assistant for work on war damage, surveys, etc. Box 557.

ARCHITECTURAL ASSISTANT (male) required by Electricity Supply Undertaking operating in and near London; age 30/35; salary £350 to £400, inclusive of war bonus. Reply Box 562.

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.

PROBATIONER, R.I.B.A., ex-Service man (Intelligence Corps), preparing for intermediate exam., requires employment in Architect's Office (London area) as Draughtsman and in general duties; available at once. Box 217.

REGISTERED ARCHITECT, over 25 years' practical building and engineering experience; plant, plant layout, building conversions and design for economical operation, surveys, specifications, works and D.O. supervision, etc.; factories, garages, dairies, shops, flats. Box 211.

A. R.I.B.A., T.P. Dip. (30), seeks practice, partnership, or part-time work; near South Coast. Box 238.

APPOINTMENT or Partnership wanted with professional Architect or Surveyor; advertiser is chartered civil engineer, with wide experience in building and structural design. Box 237.

CHIEF ARCHITECTURAL ASSISTANT, 25 years' experience domestic and industrial, seeks responsible post; first-class work; rapid design and planning; accustomed complete charge; excellent testimonials. Box 236.

ASSOCIATE, School Diploma, age 42, seeks appointment in provinces as Chief Assistant, with view to partnership. Box 231.

ARCHITECTURAL ASSISTANT, intermediate standard, with 12 years' general experience, including housing, after war service in provinces, desirous of returning to London; central or suburban area; in situation offering opportunity of housing accommodation. Box 235.

ARCHITECTURAL DRAUGHTSMAN, aged 23 years, requires position with Architects, or others in the Birmingham area; full particulars on request. Box 234.

REGISTERED ARCHITECT, Dipl. Arch.; willing to take on spare time architectural or surveying work in the evenings, including dilapidation claims, specifications, etc., in the London area. Box 233.

ARCHITECT, with first-class training and long, all-round experience, including town planning, seeks change offering scope for initiative and ability; willing to accept responsibility; London area. Box 232.

CHANGE WANTED.—A.R.I.B.A. (35), 4 years on R.E. works, recently demobilised, seeks occupation in S.W. or West of United Kingdom; involving more air and exercise than office work; salary not main consideration. Box 230.

ARCHITECT'S ASSISTANT, aged 26, good accurate draughtsman, with excellent testimonials, desires change of post; 10 years' experience in Architects' offices preparing working drawings, details, models, surveys, levelling. Box 239.

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 Baily, Grundy & Barrett, Ltd., Electrical Engineers, Cambridge. 877

WAYGOOD-OTIS Six Passenger Auxiliary Micro Lift; 1,000 lbs. duty load; 150 ft. per min.; 7½ h.p., 400 volts, 3-phase, 50 cycles; complete with shaft equipment and control gear; in perfect condition; purchaser to dismantle on site; price £600. Yardley & Co., Ltd., Sackville House, 40, Piccadilly, London, W.1. 554

Miscellaneous

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

A. J. BINNS, LTD., specialists in the supply and fixing of all types of fencing, tubular guard rail, factory partitions and gates. 53, Gt. Marlborough St., W.1. Gerrard 4223-4234-4295.

F. J. BAYNES, LTD., established over 100 years. Heating, Ventilating and Sanitary Engineers. 99/101, St. Paul's Road, N.1. Canonbury 2552. 584

FENCING AND GATES of every type, supplied and erected. Specialists in chain link. Boulton & Paul, Limited, Norwich. 552

WANTED.—One set of "Arts Et Metiers Graphiques. Please reply to Box 5.

SALES EXECUTIVE, of proven ability (16 years' experience and an established and live connection with the most progressive architects, surveyors, building contractors, Councils and Local Authorities), seeks preliminary interview with progressive company. Box 208.

MANCHESTER Municipal School of Art, All Saints, Manchester, 15.—The School of Architecture would be glad to receive Trade Catalogues and Trade Construction plates. 547

TRACING.—All Architectural and Engineering Drawings expertly and speedily executed in private studio; fees by arrangement.—A. J. Wootton, 29, Brownspring Drive, New Eltham, S.E.9. 559

FENCING FOR ALL PURPOSES.—Supplied and erected; established 100 years. Parker, Winder & Achurch, Ltd., 80, Broad Street, Birmingham, 1.

M. & E. EQUIPMENT (CONSTRUCTIONS), LTD., 71, Lots Road, Chelsea (Tel. No.: Flax 3181), are prepared to accept work for:—Spraying: Cinemas and Hotels our speciality; we have expert spraying operatives, with the latest plant and equipment. Steel Erection: We have trained specialists in light steel erection, sheeting, metal lathing, steel rope and tube constructions, etc. 561

AUTHORS are invited to submit MSS for book publication, particularly Stories for Children, and Poems. Stockwell, Ltd., Elms Court, Ilfracombe. 560

ARCHITECTURAL INTERIORS.—A newly formed firm—Bombay and New Delhi—under the direction of British interior specialists, are desirous of securing agencies covering all India for materials and products appertaining to high-class interior work. Reply to Abbott, 1, Courthope Road, Wimbledon, S.W.19. 563

Educational Announcements.

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

R.I.B.A. QUALIFYING EXAMINATIONS. Mr. C. W. Box, F.R.I.B.A., M.R.San.I. Courses of Correspondence and Personal in Studio. 115, Gower St., London, W.C.1 (Tel.: Euston 3906), and at 23, St. James's St., Derby (Tel.: 45648).

R.I.B.A. and T.P. INST. EXAMS. Private Courses of Tuition by correspondence arranged by Mr. L. Stuart Stanley, M.A., F.R.I.B.A., M.T.P.I. Tutor, 161, West Heath Road, N.W.3. Tel.: SPE 5319. 415

Alphabetical Index to Advertisers

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