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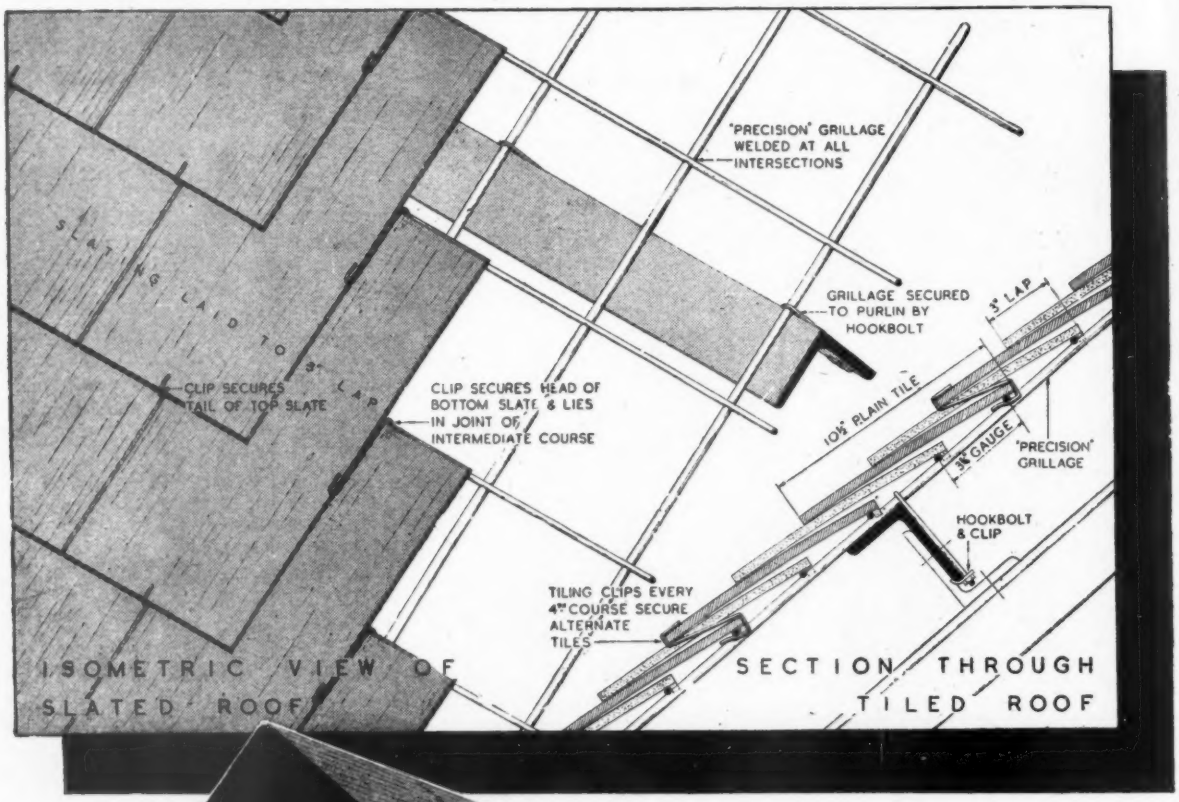
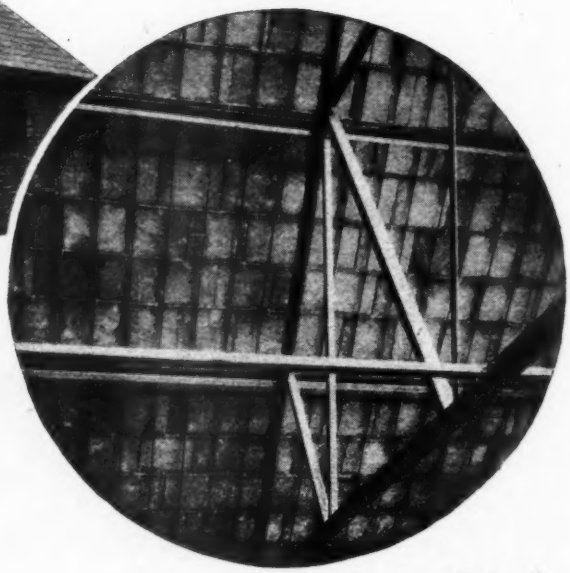


Slated Roof.



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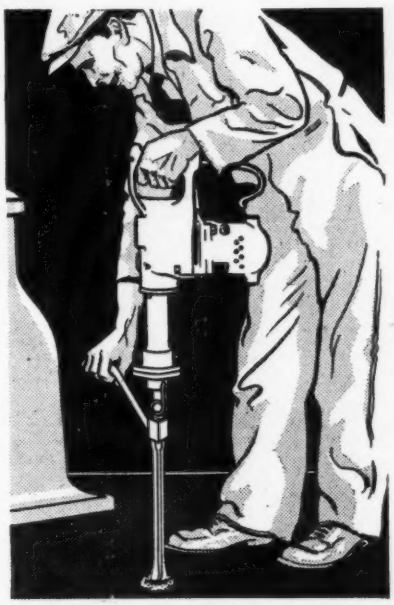

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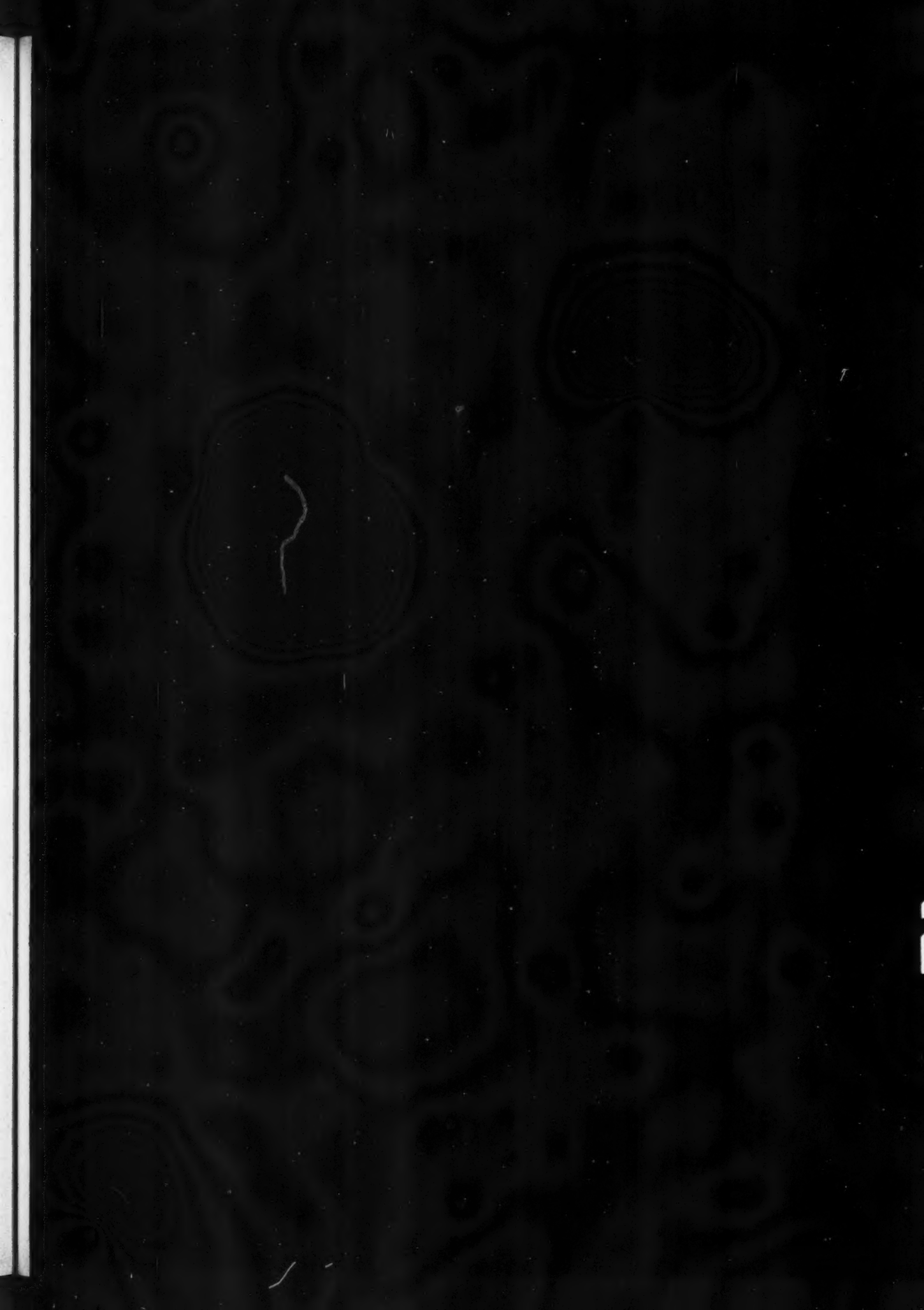

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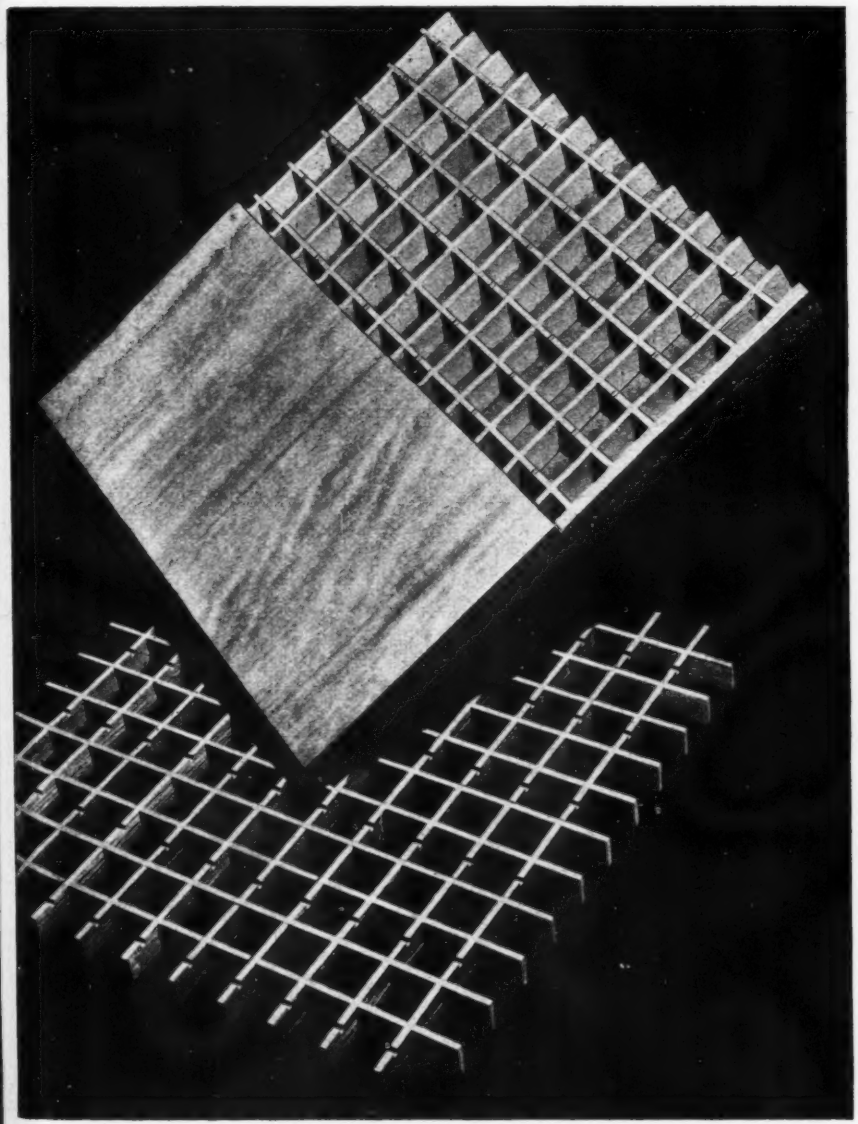

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6′ 6″ × 2′ 0″ × 1¾	,,
6′ 6″ × 2′ 2″ × 1¾	,,
6′ 6″ × 2′ 4″ × 1¾	,,
6′ 6″ × 2′ 6″ × 1¾	,,
6′ 6″ × 2′ 8″ × 1¾	,,
6′ 6″ × 2′ 10″ × 1¾	,,
6′ 6″ × 3′ 0″ × 1¾	,,
6′ 8″ × 2′ 0″ × 1¾	,,
6′ 8″ × 2′ 6″ × 1¾	,,
6′ 8″ × 2′ 8″ × 1¾	,,
6′ 8″ × 2′ 10″ × 1¾	,,
6′ 8″ × 3′ 0″ × 1¾	,,
7′ 0″ × 2′ 0″ × 1¾	,,
7′ 0″ × 2′ 4″ × 1¾	,,
7′ 0″ × 2′ 6″ × 1¾	,,
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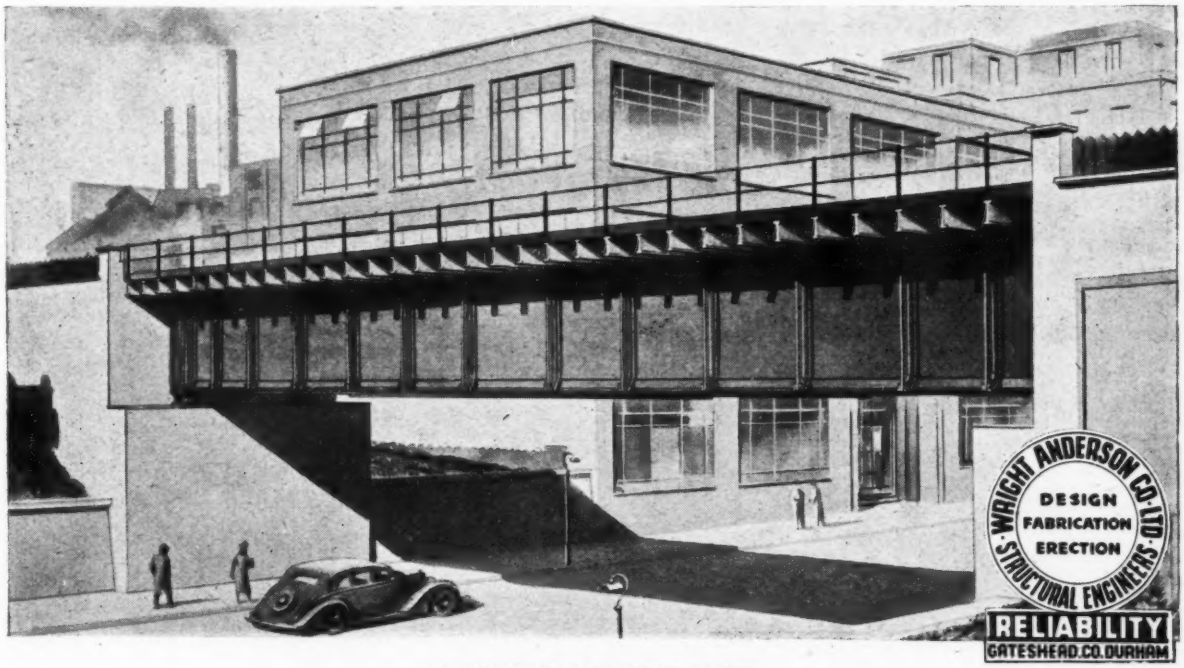

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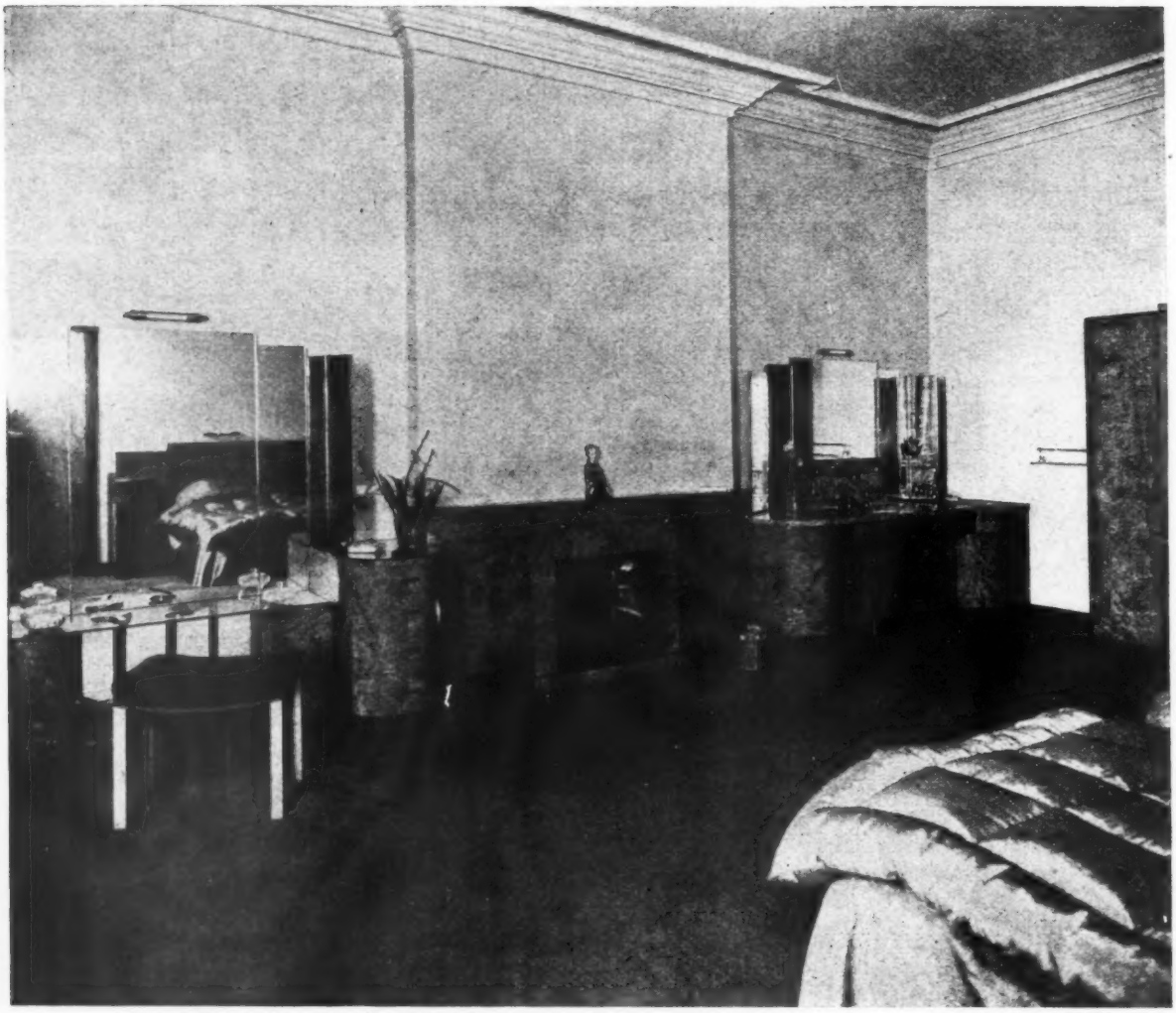

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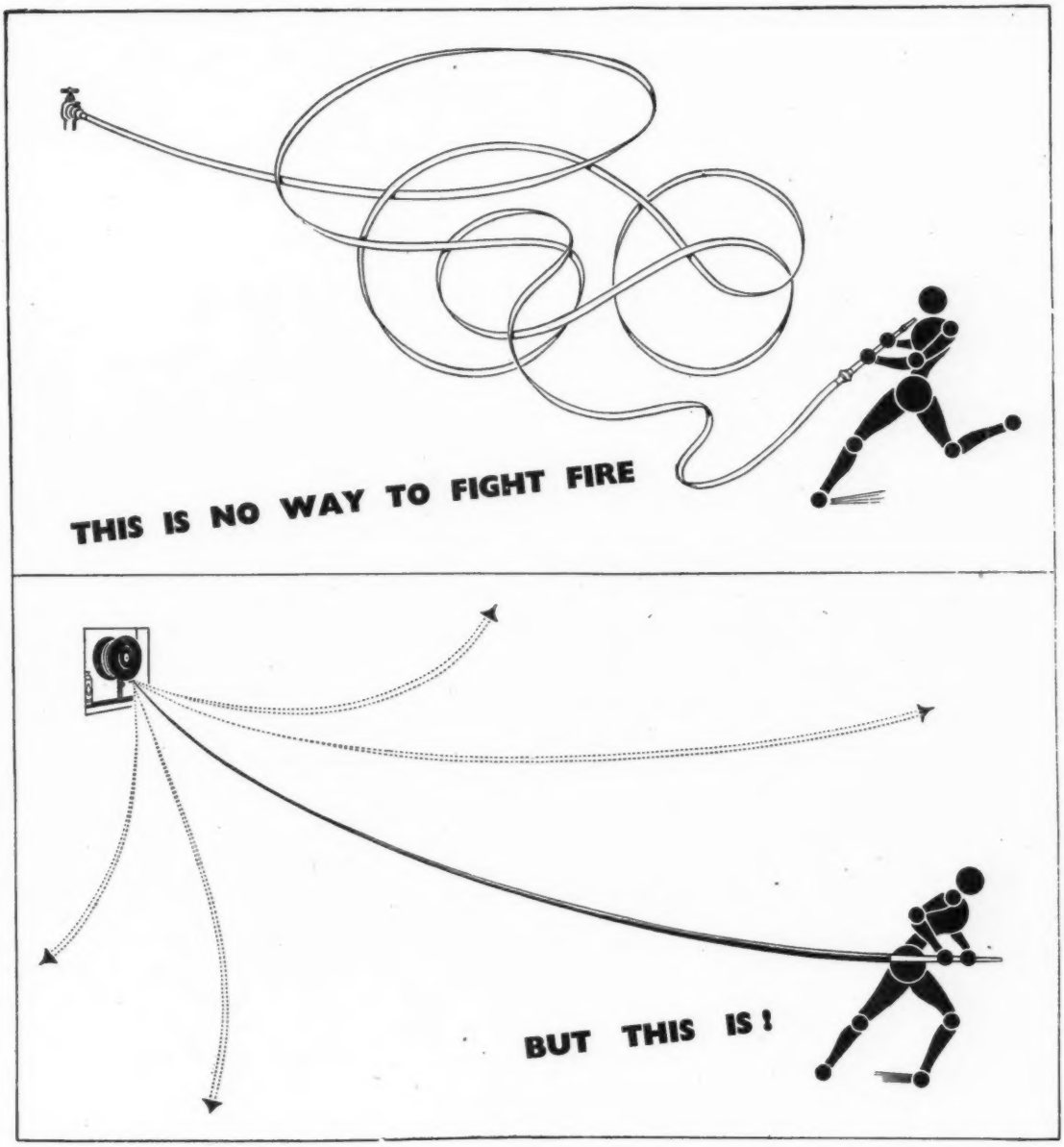

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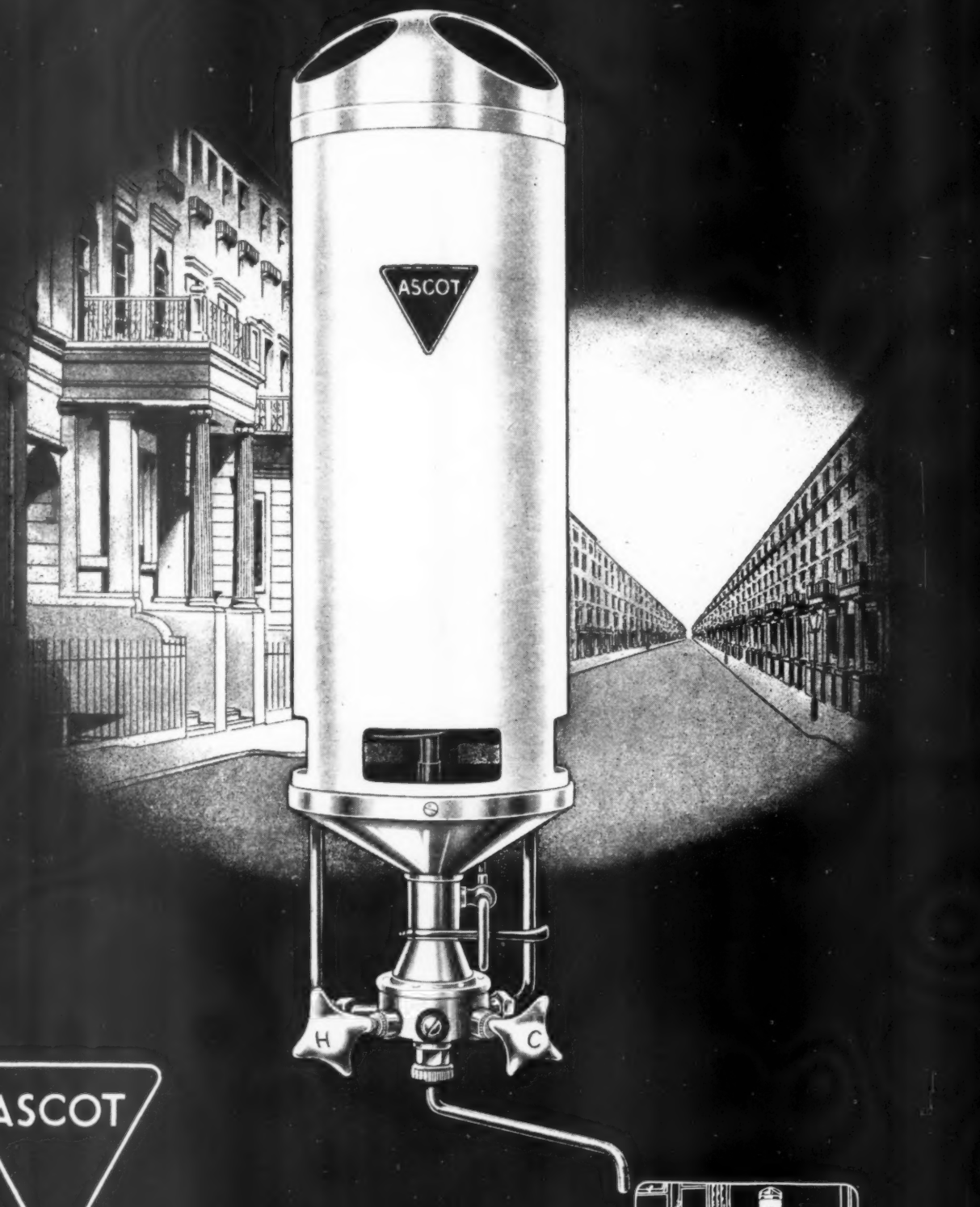

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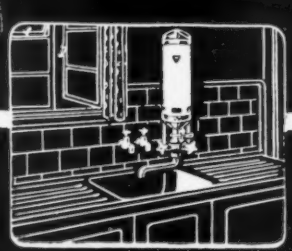

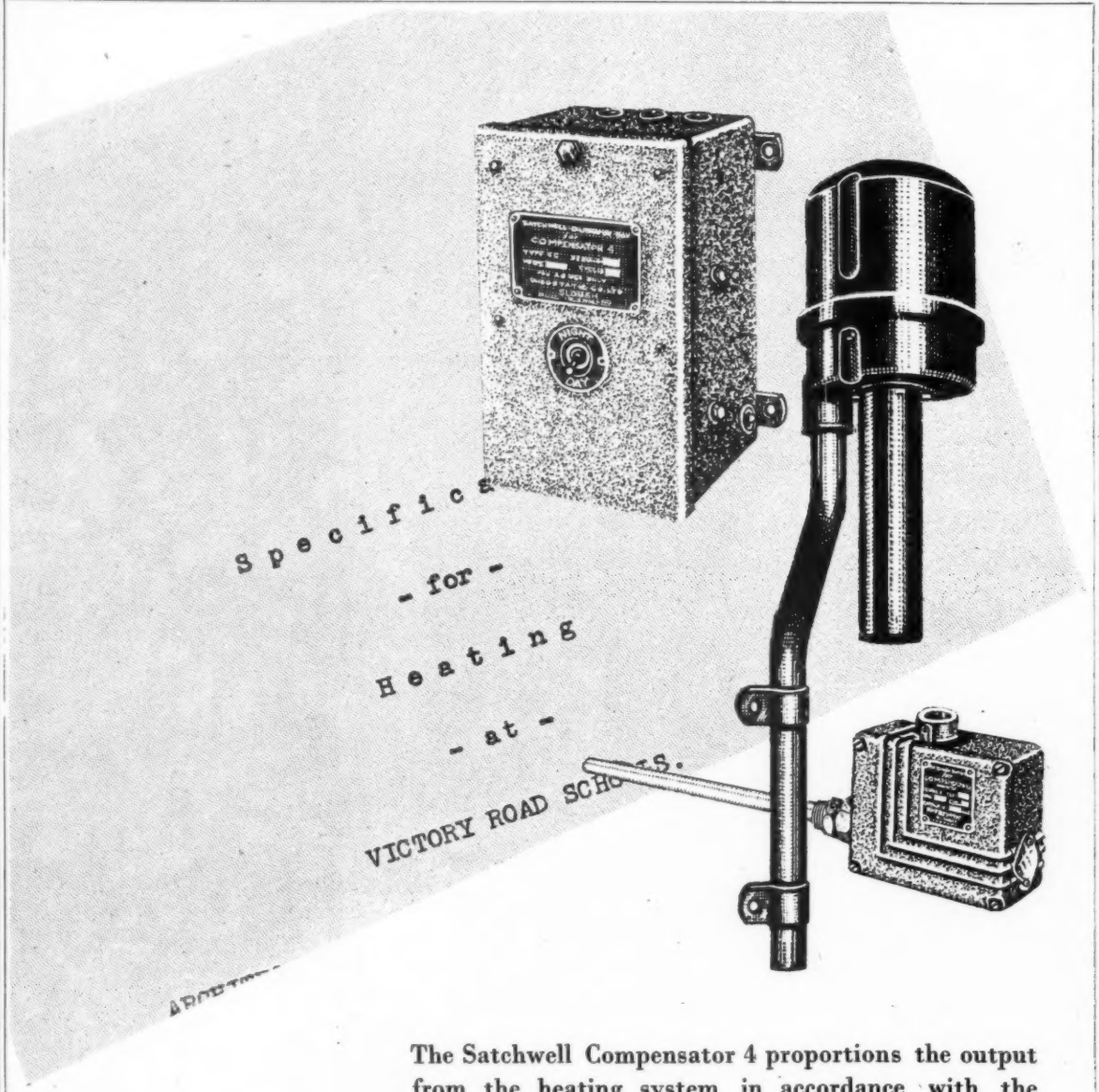

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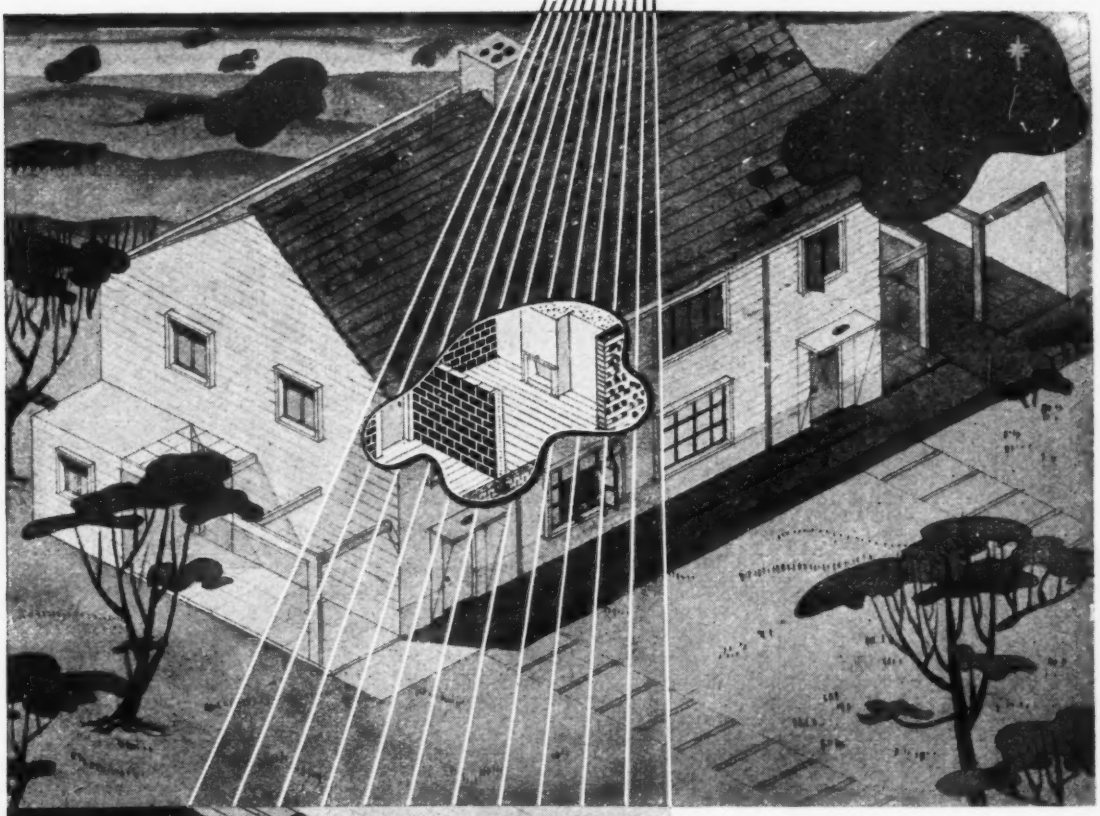

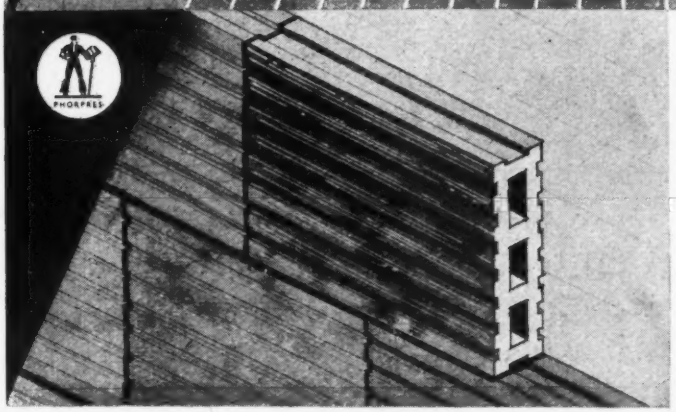

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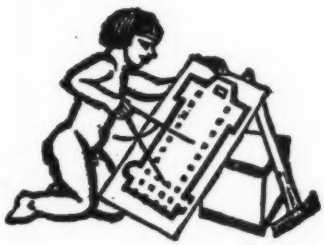


DIARY FOR MARCH APRIL AND MAY

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

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

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

LONDON *Good Heating for Every Home Exhibition.* At the Royal Horticultural Hall, Vincent Square, S.W.1. (Sponsor, Solid Smokeless Fuels Federation.) MAR. 28-30

Exeter Phœnix. An exhibition illustrating the Exeter plan of Thomas Sharp. At the Housing Centre, 13, Suffolk Street, Haymarket, S.W.1. (Sponsor, HC.) MAR. 28-29

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

John Mason. *A Commentary on the Draft Code of Practice for the Structural Use of Steel in Buildings.* At the Institution of Structural Engineers, 11, Upper Belgrave Street, S.W.1. (Sponsor, ISE.) 6 p.m. MARCH 28

Richard H. Sheppard. *Reconstruction of Our Public Buildings and Places of Amusement.* Fourth of five lectures on *Design in Daily Life.* At the London County Hall, S.E.1. Chairman, Norbert Dutton. Admission free. (Sponsor, DIA.) 6 p.m. MAR. 28

William Allen. *Colour in Buildings.* Architectural Science Board lecture. At the RIBA, 66, Portland Place, W.1. (Sponsor, ASB.) 5.45 p.m. APRIL 3

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

Rural Planning. Town and Country Planning Association Conference. At the Queen Mary Hall, Y.W.C.A., Great Russell Street, W.C.1. To be opened by the Minister of Agriculture, the Rt. Hon. Tom Williams, M.P. Speakers will include A. C. Richmond, Professor A. W. Ashby, Donald McCulloch, Lord Portsmouth and Geoffrey Clark. (Sponsor TCPA.) APRIL 4-5

Conference on the Planning and Equipment of Special Libraries. At the RIBA, 66, Portland Place, W.C.1. Conference open to members of the Association of Special Libraries and Information Bureaux and the RIBA at a fee of 10s., non members £1, including buffet luncheon. Applications for tickets to the Association of Special Libraries and Information Bureaux, 52, Bloomsbury Street, W.C.1. APRIL 6

Mrs. Lovat Fraser. *The Future Use of Plastics.* At the International Arts Centre, 3, Orme Square, Bayswater Road, W.2. (Sponsor, IAC.) 8 p.m. APRIL 9

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

D. Winston Aldred, Head of the Department of Architecture and Building, South west Essex Technical College and School of Art. *The New Building Science.* Bossom Gift Lecture. At the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1. 2.30 p.m. APRIL 9

Training of Planning Personnel. Town and Country Planning Association Conference. At Alliance Hall, Palmer Street, S.W.1. (Sponsor, TCPA.) APRIL 12-13

AA Film Evening. At 34-36, Bedford Square, W.C.1. (Sponsor, AA.) 6 p.m. APRIL 30

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

NEWS

THURSDAY, March 28, 1946
No. 2670 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.*

At the RIBA on April 6, a Conference will be held on the PLANNING AND EQUIPMENT OF SPECIAL LIBRARIES.

The Associaton of Special Libraries and Information Bureaux has organized a conference to be held at the RIBA on Saturday, April 6, to discuss problems connected with the planning and equipment of special libraries. The conference will be in two sessions: Morning—Planning and equipment of University and College libraries. Afternoon—Planning and equipment of libraries in research organizations and industrial concerns. The conference will be open to all members of ASLIB and RIBA at a fee of 10s., non-members of either institution £1. This will include both sessions of the conference, mimeographed copies of the papers sent in advance, and a buffet luncheon. Applications for tickets should be made to ASLIB, 52, Bloomsbury Street, London, W.C.1. Great pressure is being put on all institutions to improve their information and library services. This will be one of the subjects for discussion at the forthcoming Empire Science Conference. In this country it is realized that the intelligence services behind research and industry are capable of considerable improvement and that the research and industrial libraries should be greatly developed. The particular advantage of a conference like this is that it can bring the users of libraries and architects together for detailed and constructive discussion.

From AN ARCHITECT'S *Commonplace Book*

THE ORIGIN OF TASTE. [*From* Georgian London *by John Summerson* (*Pleiades Books*).] Taste in architecture reached London about 1615: taste, that is, in the exclusive, snobbish sense of the recognition of certain fixed values by certain people. Taste was a luxury import from Italy, received and cherished by a small group of noblemen and artists whose setting was the not very polished Court of James I. Architecture was a late comer to this little circle of intelligence in a still half-medieval England. But its arrival had been expected. Taste in other things—poetry, manners, the stage—was already tolerably well started. There were people about the Court who had not only been to Italy, but were unaffectedly familiar with the kind of culture to be found at the Courts of Florence, Milan and Venice. People interested in such things talked about the possibilities of real Italian buildings—not just mannerist conceits—being built in England. Sooner or later it was bound to happen. All that was needed was the right man and the right opportunities and both came along in 1615, the year that Inigo Jones, just back from his third visit to Italy, was appointed Survevor General to the King.

★

The first of the lectures on OFFICE ORGANIZATION will take place at the RIBA on April 30, at 6.30 p.m.

Mr. J. Murray Easton, F.R.I.B.A., will take the chair and other architects will give short talks on the organization of large, medium and small offices. This, the first of a series, will cover primarily the offices of private practitioners. Later, it is hoped to arrange talks dealing with the various types of local authority and commercial offices. The lectures are intended primarily for architects released from the Forces, and others returning to private practice who may feel themselves out of touch with present-day trends. The speakers have been asked specially to stimulate discussion and to be ready to answer questions. Special arrangements are being made to supply refreshments, at a small charge for those coming direct from their offices. These will be available from 6 to 6.30 p.m. Members intending to be present are asked to telephone or send a postcard to the Secretary, The Lectures Committee, RIBA, so that the necessary arrangements for refreshments can be made. The Committee feels that a service of this kind will be of considerable use to members, but they will only be able to continue it for other lectures if it is found that it is generally needed.

★

National Council of the Federation of Master Builders: The Government is exercising every possible means of FRUSTRATING PRIVATE ENTERPRISE.

The National Council of the Federation of Master Builders in its annual report states that the Government is exercising every possible means of frustrating private enterprise and declares that the houses so urgently required cannot be provided under the present system. Houses cannot be provided by the local authority or private enterprise unless there is proper planning of manufacture and distribution of material, and it is apparent that the necessary thought and action has not, so far, been given. It is useless to demobilize building trade operatives for house building if the material is not available for the absorption of their energies. The new Housing Bill has provided a subsidy exclusive to local authorities. The subsidy of £16 10s. a year for 60 years is stated to involve a capital sum of £595, which means in effect that by the deposit of this amount a corporate body will pay an annuity of £16 10s. a year for 60 years. Taking another view, £16 10s. a year for 60 years by simple arithmetic amounts to £990. Adding compound interest over the period produces a sum approximating £2,000. In fact, therefore, the ratepayer is called upon to shoulder the burden of every house built by the local authority by paying for it approximately one and half times. The council contends that if private enterprise is given half of the subsidy as construed by the Government—say, £250—this will not be putting money into the pocket of the capitalist, but will have the effect of bridging the gap for the occupier-owner between to-day's peak prices and what will be something appertaining to normality in a few years' time. Private enterprise building is always cheaper than any local authority can achieve, since the latter never includes the actual costs involved.

★

Mr. Leon Berger, Dip. Arch. (Liverpool), A.R.I.B.A., has been APPOINTED DEPUTY BOROUGH ARCHITECT OF SOUTHAMPTON, at a salary of £750-900 per annum.

Mr. Berger won the Honan Scholarship of the Liverpool Architectural Association and in 1932 was awarded a Diploma in Architecture with Distinction. He has had experience in America, where he worked for the firm of Graham, Anderson, Probst and White, of Chicago, later taking up private practice in Liverpool and then becoming Senior Assistant Architect to Mr. L. H. Keay, Director of Housing, with whom he was engaged on those pioneer schemes for rehousing in the central areas which aroused such interest at the time. In 1937 Mr. Berger took up the post of Chief Assistant Architect to the Borough of Salford, where he remained until joining the Army. Most of his war service was in the Far East with the R.E's, at first in the ranks and later commissioned. He was demobilized as Captain in October, 1945.

Mr. Leon Berger, Dip. Arch. (Liverpool) A.R.I.B.A., appointed Deputy Architect of Southampton. See News item.

★

The RIBA Board of Architectural Education has issued a pamphlet on RIBA PRIZES AND STUDENTSHIPS 1946-7.

The pamphlet contains full information upon the various Prizes and Studentships, together with, where applicable, the detailed programmes for the competitions. Copies of the pamphlet are obtainable at the RIBA, price 2s. exclusive of postage.

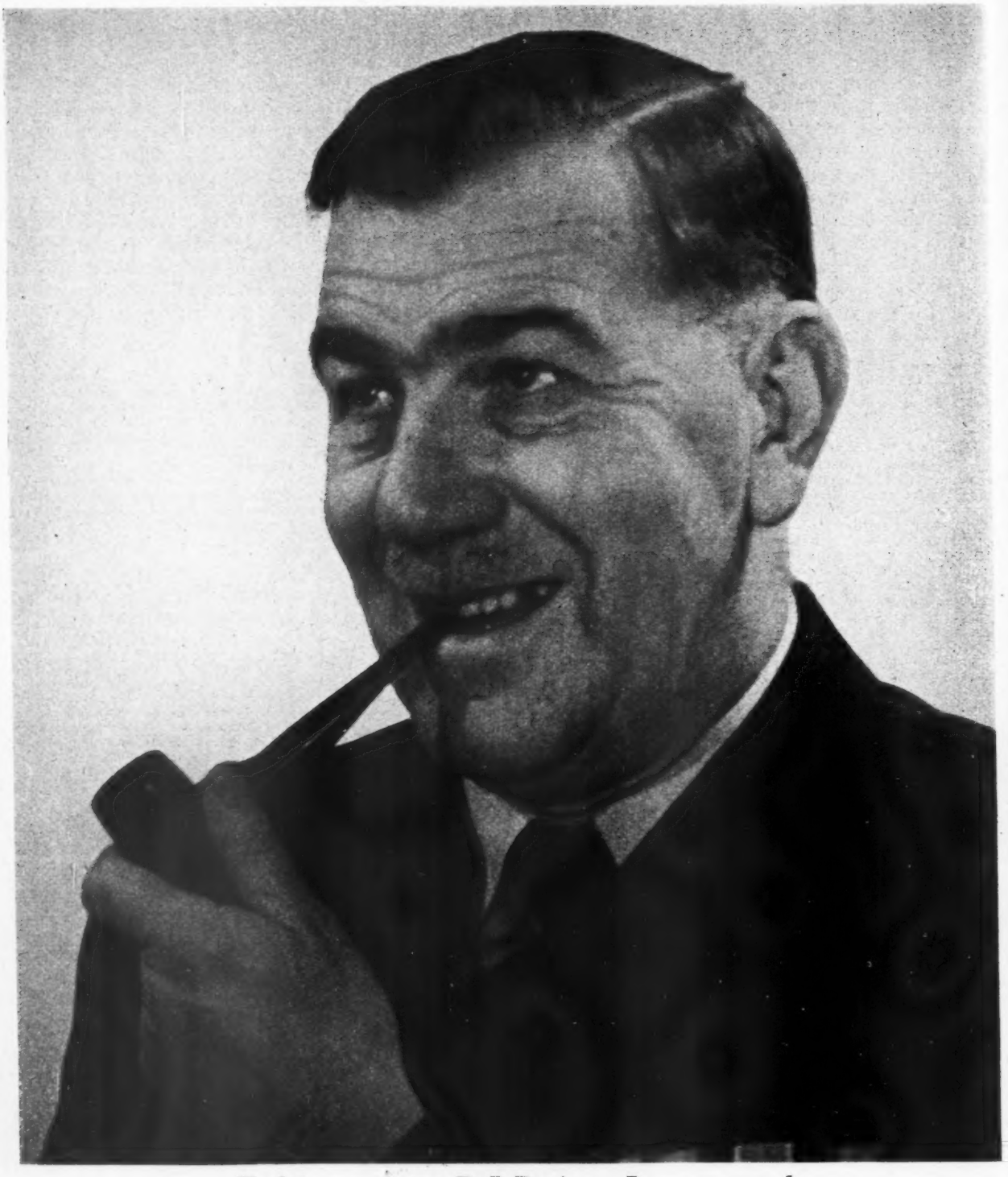
At the Fifth Annual General Meeting of the FEDERATION OF MASTER BUILDERS, held in Blackpool, the following National Officers were elected for the current year:

President, Sir Harry Selley, J.P.; Immediate Past President, J. H. Heal, J.P.; Hon. Treasurer, H. A. Maxfield, J.P., C.C., M.I.O.B.

Two premiums of £50 and £25 respectively are offered by the Metropolitan Drinking Fountain and Cattle Trough Association for designs in COMPETITION FOR A PUBLIC DRINKING FOUNTAIN.

The promoters intend to erect a number of fountains from the winning design. In addition to the premium the Association will pay a royalty of £3 on each fountain completed. The assessors are Oswald P. Milne, F.R.I.B.A., Royal Society of Arts (*Chairman*), Keith Murray, R.D.I., F.R.I.B.A., Master of the Faculty of Royal Designers for Industry, and Surgeon Vice-Admiral Sir Reginald Bond, K.C.B., M.B., F.R.C.P., F.R.C.S., D.P.H., Metropolitan Drinking Fountain and Cattle Trough Association. The competition is being conducted by the Royal Society of Arts, 6-8, John Adam Street, Adelphi, London, W.C.2, from whom the conditions can be obtained. Closing date July 31.

C



Editor, RIBA Journal

Fifty-two years old Mr. Eric Leslie Bird, A.R.I.B.A., this year appointed Editor of the *RIBA Journal*, entered the service of the Institute in 1933 as Technical Editor of the Journal and Secretary of the Public Relations Committee. The son of William F. Bird, M.S.A., of Midsomer Norton, he was educated at Wycliffe College, Glos., and spent two years in his father's office. During the first world war he served in France in the Army, won the M.C., and became a Captain. Afterwards and before he joined the RIBA he attended the AA School; practised with Hubert Clist, A.R.I.B.A., and subsequently with the late H. G. Atkin-Berry, A.R.I.B.A.; was Housemaster of the AA School; and Assistant Editor of the *Architect and Building News*. From 1939-45 he was Architectural Adviser to the Research and Experiments Dpt., Ministry of Home Security, and as Hon. Wing Commander RAFVR visited Sicily (1943-4) and France (1944-5) to study the effects of Allied air attacks. He served on the Council of the AA from 1940-6, was Vice-President 1943-5 and has been Hon. Treasurer for the past two years. In his work at the Institute, Mr. Bird will continue to have some influence in public relations, that important subject which again receives attention in our leading article this week.

★

A sub-committee of the Ministry of Health Central Housing Advisory Committee has been set up TO ADVISE ON THE DESIGN OF DOMESTIC EQUIPMENT.

To ensure that more attention is paid to the housewives' points of view in the design and construction of domestic equipment, the Minister of Health (Mr. Aneurin Bevan) has asked his Central Housing Advisory Committee to set up a Sub-Committee " to advise on matters relating to domestic equipment, fitments and components for houses from the standpoint of domestic convenience."

The Sub-Committee will continue the work previously done by the Domestic Users' Panel, formerly attached to the Ministry of Works. The Sub-Committee will be under the chairmanship of the Dowager Marchioness of Reading, G.B.E., Chairman of WVS, and the following other members of the main Committee have agreed to serve:—Sir Harold Bellman, M.B.E., J.P. Chairman, Abbey National Building Society, and formerly member of the Domestic Users' Panel). Mrs. E. Gooch, J.P., C.C. (Norfolk County Council, formerly member of the Domestic Users' Panel). J. Greenwood Wilson, M.D., F.R.C.P., D.P.H. Medical Officer of Health, Cardiff, who acted as Chairman of the Equipment panel of the Design of Dwellings Sub-Committee of the Central Housing Advisory Committee). L. H. Keay, O.B.E., F.R.I.B.A. (City Architect and Director of Housing at Liverpool). Miss Jennie Lee, M.P. (Member of Parliament for Cannock). Miss Emily Murray (Housing Manager of the Westminster Housing Trust). Councillor Mrs. Beatrice Wilson, J.P. (who has an intimate knowledge of the views of working housewives). So that its views shall be as representative as possible, the following, who are not members of the Central Housing Advisory Committee, but are specially qualified to advise on this question, have agreed to serve as co-opted members of the Sub-Committee: Miss H. Burke (Expert on Kitchen Management), Mrs. Darcy Braddell (Women's Advisory Housing Council), Miss L. Gentle (National Union of Domestic Workers), Mrs. V. M. Jew (National Federation of Women's Institutes), Mrs. G. Lloyd (Women's Co-operative Guild). Arrangements will be made to co-ordinate the work of the Sub-Committee with that of the Council of Industrial Design.

★

In April thirty young draughtsman designers, some just demobilised from the Services, will report to Pendley, near Tring (Herts.), where a RESIDENTIAL CENTRE FOR ADULT EDUCATION has been established.

Special four-day refresher courses on design in industry have been arranged for them by the Council of Industrial Design. This experiment of refresher courses for designers is the first of a series. Pendley, a large manor house built in 1875, stands in a 100 acres of park land. It has been established as a boarding house for week-end students to meet the needs of the ordinary people, the education being of an informal kind.

The new mid-week courses at Pendley have now been started by the Council and are likely to become a feature of this centre. There is accommodation for 45 students, but non-residents may join in the classes.

PUBLIC RELATIONS: III

GRANTED the need for improved understanding between the public and the architect, how do we go about achieving it? The obvious starting point is the fact that architecture is a visual art and must therefore be explained visually. But that is only a start. What are the essentials of visual teaching?

The child's first spelling book provides the answer. After all, the first task in explaining architecture is to give the layman a vocabulary, a knowledge of the right words with which to express his thoughts and so crystallise them in his mind. It is identical with the task of the teacher teaching the child to read. There is the picture of the cat sitting on the mat. Alone it is useless. But add to it the words " the cat sits on the mat " and there is the first lesson. So with architecture. An exhibition of photographs or drawings must never be simply an art gallery of beautiful individual pictures. Each picture must be subordinated to the main theme of the exhibition. They are members of a team.

Here again, the art of the visual aid in teaching has made great strides during the war. The success of the Army Bureau of Current Affairs travelling exhibition has been established. Each exhibition was built up around a single topic, for example, the supply of goods by sea to North Russia. Each picture was there only because it showed an essential link in the story. So too did the letterpress at the foot of each picture. The exhibition must take a single subject—for example, the development of the use of brickwork—and each picture must be related solely to that topic. The exhibition may rely on an accompanying lecture or solely on the words that appear below each picture. Words as well as pictures must be part of the whole.

The other two main examples of the visual aid are the film and the combined exhibition of pictures, models, diagrams and charts. The major difficulty about both is the expense, but the expense is often justified, if only because a really good example of either should be attractive enough to justify an admission charge. All three Services during the war placed more and more reliance on the film as a teaching medium, with the result that the film trade is now expert in planning and executing films to teach all sorts of subjects, and since these are made for 16-mm. projectors they have a very wide field for exhibition.

But, in one sense, to urge that the architectural profession must meet this increased demand on the part of the public for guidance in architecture is to preach to the converted. The RIBA is fully aware of the need and has set up its own internal organisation to meet it. It has its Public Relations committee, with sub-committees on Films, Broadcasting, Television, Lectures, Exhibitions and Press and Publications. It has a Public Relations Officer, with an assistant and an Exhibition Organiser, and it is starting off on its campaign

with an Exhibition in London in the first week in April. But the danger of an efficient central organization is that the individual architect may feel that there is nothing for him to do, that everything is under control, which might be true, perhaps, if the central organization had an income at least four times as large as it has and was at liberty to spend it all on this kind of activity.

Relations with the public are the concern of every architect and of every Allied Society. It is they who can provide the time that otherwise has to be bought, and the enthusiasm that can never be bought. If they believe that architecture could be and should be a real expression of our way of life, they will accept the individual responsibility of telling the Institute or their local Allied Society what they can do and what they will do to ensure that we do not, as a country, sink back into our former indifference to the appearance of things around us. The slogan for the whole profession now must be: Every Architect a Crusader for Fine Building.

The Architects' Journal
War Address: 45, The Avenue, Cheam, Surrey
Telephone: Vigilant 0087-9

NOTES & TOPICS

GOODBYE, MR. CARTER

As most people have learned by now, Edward Carter is leaving the RIBA in a few months' time to take up a new post in the Paris H.Q. of UNESCO. It is some indication of the position he holds in our profession, that the news comes as a personal shock to many thousands of architects—from all nations and of all ages. To some people the post of librarian to a learned society may sound a dusty, pottering sort of job. That was not the way Mr. Carter thought about it when 16 years ago he was appointed RIBA librarian, at the age of 29. And so it was that those who visited his office found no comic-strip professor mumbling over metopes, but a young man before whose incandescence the orthodox impersonality of the Institute melted like snow beneath an arc lamp.

*

They found, too, that not only was he controlling, with the help of his able staff, one of the best-run libraries in London, but was building up an Architects' Guidance Clinic upon which nearly all of us became more and more dependent. Do you want to entertain a posse of town-planners from Venezuela? Do you want a lecturer for Dagenham, an author for a book, an architect for a swimming bath, a home for a refugee? "Ring up Bobby Carter at the RIBA," they said—and sure enough he never failed.

*

To say that we shall miss him is a feeble understatement, but it is some consolation to know that the work which he is to take up in Paris could hardly be more important than it is or more suited to his inexhaustible energy and ability. It is safe to say that we shall still ring him up when we want advice—even if we leave it till after 7 p.m.

*

Postcript for jackals: Please do *not* ring Mr. Carter at the RIBA and ask if his Hampstead house is for sale.

INTERNATIONAL CHORUS

Nosing through publications received, trying to separate, as the phrase goes, the chypre from the goats, I find in *Architecture* an account of Victor Vesnin's party in Moscow held to celebrate his receipt of the gold medal, and a description of the moulding from baked gypsum of a new town near the Caspian Sea: *Limited Edition*, the art news letter from the USA, puts forward a scheme for combating the confusion caused in art-collecting circles by the recent confession of the Dutchman, Van Meegeren, that he is the author of seven of the 27 "genuine" Vermeers known to be in existence: *Museion*, international organ of the museum and gallery set, reveals that during the war the British Museum was *touché plusieurs fois* by bombs, while *Plan*, magazine of the Architectural Students Association, falls right into the Ho-Hum basket, since it carries an article called *The Gracious Georgians*, an historical treatise on South African architecture, and excellent advice from SPAB on the treatment of ancient buildings.

*

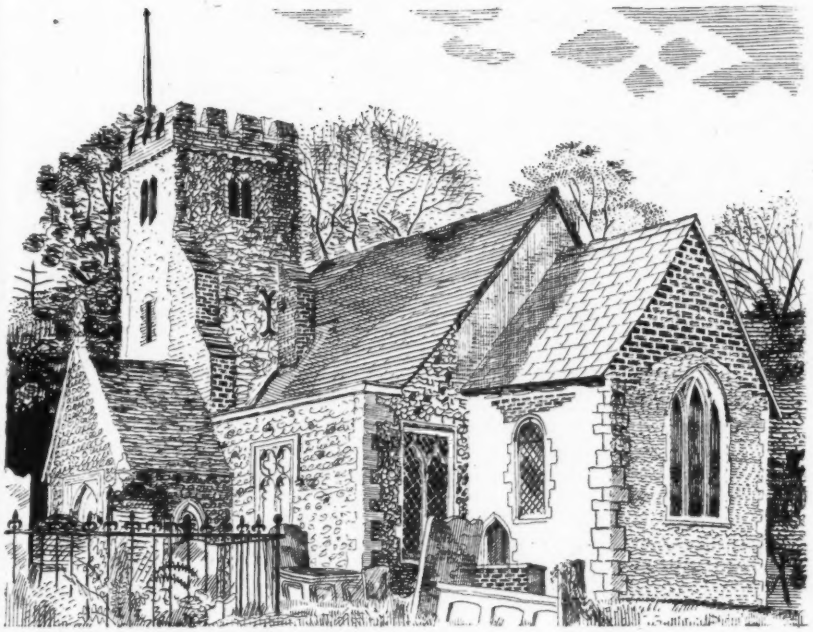
Moving the editorial chair from place to place is certainly an excellent device for ensuring variety of approach. It is not insignificant that the present number of *Plan* comes from Liverpool. Is the influence of the Poles—always proud of their architectural heritage—still strong there, and did Mr. Summerson, when he visited the ASA Congress, fan the spark into a flame?

*

According to our Liverpool spy (hidden in one of Rowse's ventilating shafts) the Soane Curator sat up all night answering students' questions on architecture, the NBR, village greens, and Sir Charles Reilly. Well, whatever the reason, congratulations to *Plan* for not being ashamed of its architectural ancestors and for being aware of our responsibilities towards them.

*

A little unfortunate that the editorial says "How shall we clear the country of the Macgregors that are wantonly dashing the old works to pieces. . . ." To most people a Macgregor is not a name for a vandal, but the name of the SPAB's energetic and knowledgeable expert in restoration.



A drawing of Lindsell Parish Church, Essex, by Kenneth Rowntree from Lindsell, a Record of its People, Parish and Church *by the Rev. Osborne, its vicar, reviewed by Astragal this week.*

BEST QUALITY ROWNTREE

Draw back the red baize curtain in a village church—oh, the familiar warning rattle of those rings—and as likely as not you will find it conceals Mr. Betjeman writing a poem, Mr. Piper, sketchbook in hand (provided that the sky outside is sufficiently threatening*), or more likely still our contemporary Cotman, Mr. Kenneth Rowntree.

*

Many of you will remember his romantic Whitby Church interior. Lately, concealed behind a pile of rotting hassocks, he has been recording in water colour (and pigeon-dung) the ruins of St. James, Piccadilly. Reproduced above is a less ambitious but equally sympathetic drawing—one of several illustrating a pamphlet recording the history of the people, parish and church of Lindsell, Essex, written by the vicar and published for the parish council.

*

Parish churches are often treasure-houses of local history, and many deserve most detailed study. Few vicars have the time and enterprise to undertake such study, fewer still have the fortune to find local illustrators of the calibre of Mr. Rowntree. Lindsell is clearly a lucky as well as a pretty place.

*Overheard at an exhibition of Piper's, "Damned bad weather this feller always seems to strike . . ."

FIRST POST-WAR CAR DESIGN

It is evident that the new post-war car shapes long promised us have not yet reached the production stage. While the demand for cars exceeds the supply, as it does at present, big manufacturers are not eager to interrupt their output by changing over to new post-war models.

*

All the more noteworthy, therefore, is the appearance of a new Armstrong-Siddeley, which caused these careworn eyes to open a little wider by its almost complete lack of resemblance to the rather conservative Armstrong-Siddeleys of yesterday. In outward appearance at least the new car is really new, a post-war design in which even the sphinx who has sat for so long on A-S radiators has been (in the fashionable Americanism) *restyled*. The old, rather statically monumental radiator is replaced by a radiator-shield of more flowing lines.

*

The new A-S still looks *English*. Its makers have not introduced such showy vulgarities as vast bulbous mudguards whose unpracticality is usually shown by the number of dents and scratches they collect. Not only architects, but all who appreciate the logical in design, will approve of this refusal to pander to the merely fashionable.

ASTRAGAL

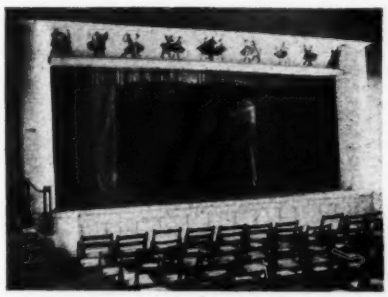
LETTERS

A. Hunter,
Capt R.E

R. W. Staud
(*Chairman, Committee on Attendance and Publicity: Chicago International Lighting Exposition*).

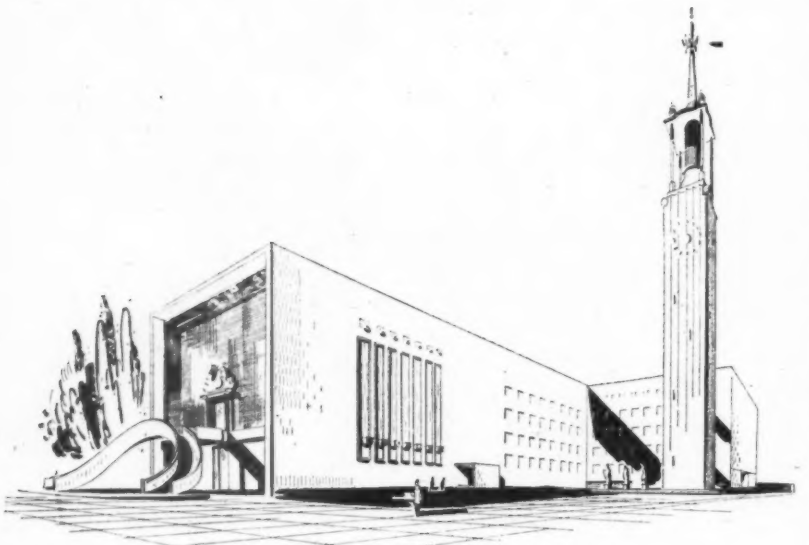
An Army Theatre in Egypt

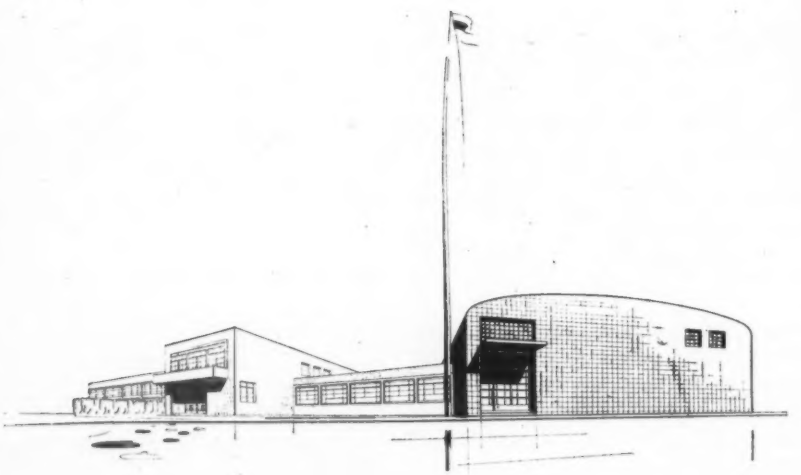
SIR,—I enclose two photographs of a theatre built by the combined efforts of British troops, Italian POWs and Egyptians in a desert area in Egypt as a centre of entertainment for the troops. Most of the work was done under great difficulties from

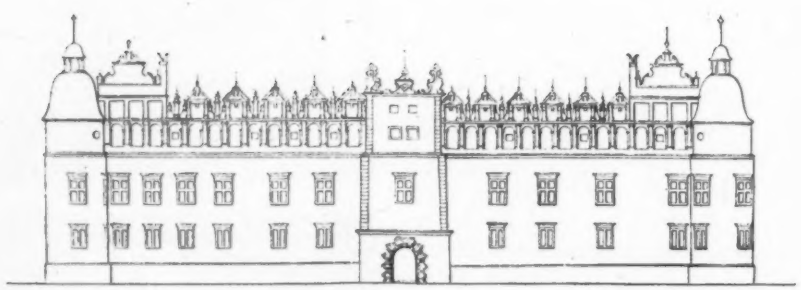


An Army Theatre in Egypt. See letter above.

POLISH STUDENTS' WORK







Illustrations from Polish School of Architecture, 1942-1945 (*University of Liverpool*, 30s. 0d.) *on which Astragal commented on March* 14. *Top, a town hall for Crosby by Jerzy Faczynski, 3rd year,* 1943, *which shows the influence of Polish baroque architecture, notably in the outside stairs and the top of the tower. Centre, a secondary school by Witold Korzeniewicz, 3rd year,* 1943. *Below, a measured drawing by Jan Kot of the castle in Baranow designed by Wladyslaw Podwapinski for the Leszezynski family at the turn of the 16th century; the castle is typical of a Polish nobleman's residence of this period, and is built round an arcaded courtyard.*

salvaged material, the whole effort being directed by a Captain Peter Gould, R.A.O.C.

As an architect, I took a great personal interest in the project, designed the proscenium and directed its execution for as long as I was in the vicinity and able to do so. The scheme as it was conceived is only partially completed. It should have had a moulded cornice instead of the boxed top shown.

The original idea was to have the whole proscenium front done in white, with the only colour in the figures of the decorative frieze. The sketches for this were done by a Polish woman artist with the Polish Forces in the Middle East. The groupings I did myself and two Italian artists transferred them to a stretched canvas, 26 ft. by 3 ft. The Slavonic figures under their brushes, while retaining their Slavonic forms in an odd way, became Stahanesque; the colours perhaps gave them that characteristic. When completed the whole canvas was lifted into position and nailed there. It was inclined towards the audience to get the full benefit of the concealed lighting in the trough at the foot of it, while lights in the girders of the roof softened the whole effect. The columns were lath and plaster drums slightly tapered and entwined.

The stage was brought forward in an apron effect and sweeping circular steps flanking it brought it down to the audience. The staircase newels were made of water-pipe with metal caps and frames welded to them to give them rigidity, a turned wooden ball was encased in the top panels and rope, dyed red, threaded through the holes in the balls to give a flush rope effect. The moulded forestage wall was executed by an Italian plasterer on a rough wall of salvaged bricks.

The aim was to bring as nearly as possible the standards of a West End theatre to a poverty-stricken environment. The aim was only partly achieved, but the satisfaction derived from the effort expended was great.

The theatre was designed to hold 1,100 and was complete with foyer and foyer bar. The credit for the whole goes to Capt. Gould, of 2 Base Laundry, R.A.O.C.

BAOR — A. HUNTER, CAPT., R.E.

Chicago International Lighting Exposition

SIR,—A special invitation is being extended to those interested in lighting who reside outside the continental limits of the United States to attend the coming International Lighting Exposition to be held in Chicago next April 25-30.

Announcement of this Exposition is being made in the leading Export Publications published in the United States and sent abroad. However, it has been suggested that through your good offices news of this Exposition might better reach many citizens of your country.

One of the great purposes served by the Exposition will be that of focusing the nation's attention on the need for a fuller and more enlightened use of lighting in industry, business, stores, farm, home, schools, etc. The conference programme, as announced, is as follows: *New Lighting Trends and Methods, Lighting Sales Forum for Electrical Contractors, Industrial Conference on Lighting Service and Lighting Sales Training, and Lighting Application Forum.* Over sixty leading lamp, lighting equipment and manufacturers of paint and other products directly related to illumination will require the entire Exhibition Hall of Chicago's Stevens Hotel to display their products.

R. W. STAUD,
Chairman, Committee on Attendance and Publicity, Chicago International Lighting Exposition, Chicago.

These notes were prepared in December last by Mr. Grundy, who is the Borough Engineer and Surveyor of Wallasey, for the Cheshire Advisory Planning Committee. They are published here in full as they form a brief, objective and up-to-date report on district heating applied to municipal housing estates, which is of general interest. The author poses a number of leading questions, which he attempts to answer—on such matters as the standards required, fuel consumption efficiency, and the important question of cost.

Some Notes on DISTRICT HEATING

[*by R. F. Brooks Grundy, B.Sc., A.M.Inst.C.E., M.Inst.M. & Cy.E.*]

1. The writer's knowledge of District Heating is derived principally from investigations which he made in 1943-44 into the possibilities of supplying district heating to a particular municipal housing estate in particular circumstances, and in these notes he has, therefore, to approach what is a fairly wide subject from a limited angle of vision, and his observations must be qualified accordingly. Except where otherwise indicated, these observations refer only to municipal housing estates, and the costs refer to 1939 conditions.

2. District Heating refers usually to the distribution of heating and hot water to the buildings in a district from one central plant. The distribution is effected by steam or hot water mains laid in ducts in the street, and each building taps its supply off these mains, obtaining the heating through a system of domestic radiators in the building and the hot water from a calorifier within the building. An indirect hot water system such as a calorifier is almost essential for a variety of reasons, two of the principal ones being that so many districts have hard water which would fur up the street mains if they were drawn from, and because a calorifier stops a greedy householder from using unlimited hot water.

3. For residential districts, unless containing numerous big blocks of flats, distribution by a closed circuit of hot water mains appears to offer advantages over steam mains, and in the writer's view a two-pipe system, *i.e.*, a simple flow and return large enough to supply both heat to the house radiators and to the domestic calorifiers has greater overall efficiency than a three-pipe or a four-pipe system where the supply to the radiators is separate from the calorifiers' supply. A three-pipe or a four-pipe system is attractive in that during the summer months the radiator supply can completely be cut off and can be more readily attuned to temperature fluctuations in the winter, though it is more expensive to install and the heat losses in the mains total more in a year than the heat losses of a two-pipe system. But it is not the purely technical details of how to supply district heating which create the main problems, so much as the question of what to supply, *i.e.*, whether merely to aim at supplying the tenants' present total consumption more cheaply or to stimulate a much larger demand by a lower rate per therm, and to decide which rooms shall be heated, to what temperatures and for how many hours per day, that create the main problems of any scheme.

4. Compared with a consumers' installation costs of gas or electricity, the net capital costs of a district heating scheme inevitably are high, even after deducting omitted fireplaces, flues, etc., in the houses; but the larger the load at the boiler station the lower will be the production cost of each therm. Assuming the consumer to bear the entire costs, then any scheme, to be economic, must be ensured of a reasonably large load factor. In a certain scheme, by way of an extreme example, the writer estimated that if each consumer received 823 net therms per annum, it would cost £17.170 (equivalent to 5.00d. per therm at 1939 prices), but if, to meet maximum demand, all the plant, staff, etc., remained the same, but each consumer took only 100 therms, then the actual coal saved would only reduce the cost to £10.958 (equivalent to 26.30d. per therm). The truth lies between such extremes, of course, as no one would design a scheme to supply 823 therms per house per annum if the assured demand were only to be 100 therms per annum; but it illustrates the fact that district heating differs considerably from heating by gas or electricity in that, with these latter, although the first therms may cost more than succeeding ones, the cost per therm does not mount with reduced consumption in any way to compare with district heating.

5. Many highly important questions must be answered before the design of a scheme can proceed, and each scheme will be different, partly because some of the answers are dictated by local circumstances and partly because no two individuals take identical viewpoints.

Some of these questions are listed as follows, with further paragraph references noted beside them.

(i) Standard of comfort to be provided	Paragraph(s) 7-11
(ii) Quantity of hot water to be provided	,, 12
(iii) Shall each householder be compelled to take district heating?	,, 13
(iv) Is the heat to be metered or supplied on a flat rate basis?	,, 14
(v) Is the scheme to be self-supporting or subsidized?	,, 15-16
(vi) Is any waste heat available from electricity works or a refuse distributor?	,, 17-18
(vii) Are the houses to be of normal construction or specially heat-insulated?	,, 19
(viii) Can district heating be readily applied to existing estates?	,, 20
(ix) What overall efficiencies of fuel consumption are probable?	,, 21

6. Both the writer and the experts could wish it were possible to give complete answers to these questions for general application to any problem; but each answer is so interdependent on others that the best that can be done is to give particular examples of worked-out schemes and say that when some of the answers are assumed, the remaining answers appear to be so and so. Based on the writer's own schemes, his answers are set out below; they refer to an, as yet, unbuilt municipal housing scheme of 500 houses, each 850 ft. super., of normal pre-war brick construction, compactly grouped at about 12 to the acre in a Greater London suburb.

7. The provision of *de luxe* conditions, *i.e.*, a constant (24 hours) living room and kitchen temperature of 65 deg. F., with hall, stairs and bedrooms at 55 deg. F., for seven months of the year, appears to require a net 489 therms per annum; the provision of a heated drying room, bathroom and towel rail throughout the year requires a further net 188 therms per annum, and the provision of 40 gallons of hot water at 140 deg. F. daily throughout the year requires a further net 146 therms per annum, or 823 net therms in all. If the same provisions be made for only 18 hours per diem, the quantity is reduced to a net 637 therms; and if heat to bedrooms be omitted entirely, the corresponding figures are 647 and 511 net therms respectively.

The estimated cost of these provisions, based on 1939 prices, is:—

Full heat 24 hrs. p.d., 823 net therms, cost £17.170 p.a., or 5.00d. per net therm.
Full heat 18 hrs. p.d., 637 net therms, cost £16.768 p.a., or 6.32d. per net therm.
Gd. floor 24 hrs. p.d., 647 net therms, cost £14.442 p.a, or 5.36d. per net therm.
Gd. floor 18 hrs. p.d., 511 net therms, cost £13.938 p.a., or 6.55d. per net therm.

8. It is important to note that these are net therms, *i.e.*, therms usefully employed in the house, as the therms generated at the boiler station will be some 33⅓d. per cent. more, because of mains and other losses, and the cost per therm, there, will be correspondingly less. The protagonists of district heating are sometimes apt to dwell on the cost at the boiler station instead of at the house.

9. Before these net therms can be compared with heating costs by other means, a further computation must be made, *i.e.*, although the net therms are those giving useful heat in the house, can a tenant in fact make full use of them? Obviously he cannot be expected to use every room continuously and simultaneously for 24 hours, nor even 18 hours, although it is reasonable to assume he may want every room heated for part of an 18-hour day. If we assume his maximum conceivable occupational requirements to demand 14 hours of full heating downstairs and 4 hours upstairs, both including "warming up" periods, then the number of therms he really requires are 481, or if bedroom heating be omitted entirely, then 454 therms. If his heat were supplied by meter, he would be induced to use these lesser quantities by turning on and off his radiators as required; but for reasons to be discussed later, metering is not very practicable, and hence a continuous heat supply for 18 hours must be given to ensure that each room is warm continuously during

that period, as without metering most tenants will leave their radiators on all the time, *i.e.*, to provide the "equivalent comfort" of 481 therms, 637 therms must be provided, or if bedroom heat be entirely omitted, then 511 must be provided to yield the "equivalent comfort" of 454 therms. On this basis:

481 "equivalent comfort" therms cost £16.768 p.a. or 8.38d. per therm.
454 "equivalent comfort" therms cost £13.938 p.a. or 7.38d. per therm.

10. Assuming efficiencies in the house of 55 per cent. and 100 per cent. for gas and electricity respectively, the foregoing costs remain substantially below the 1939 costs of gas or electricity in the same locality, but compare unfavourably with the estimated costs of independent coke boilers and radiators fitted into each house, for which the figures are 6.75d. and 5.81d. per net therm respectively. But, in any case, they only give indication of what those selected and perhaps somewhat Utopian quantities of heat might cost, and pay no regard to how much money a municipal tenant may wish to spend.

The writer obtained the actual metered quantities and expenditure of tenants of 155 similar existing houses, for a consecutive twelve-months in 1938-39, for gas, electricity and coal (after deducting estimated amounts for lighting and cooking, and adding an assumed figure of 2 tons of solid fuel).

The average bill per house for twelve months amounted to:

Heating and hot water	..	£8.702
Cooking	..	£3.596
Lighting, wireless, etc.	..	£2.030
		£14.328 p.a.

and for his £8.702 spent on heating he received 139 net therms at an average cost of 15.00d. per net therm. Thus, left to his own volition, a tenant found that £8.702 was all he could set aside for heating and hot water. Probably all this went on ground floor heating, and we must therefore compare this figure with the £13.938 required to give full ground floor (district) heating, *i.e.*, 454 useful therms at 7.38d. per net therm.

11. How far does a cheaper therm interest him at the expense of a rising annual bill? Only a series of schemes in actual operation is likely to determine this point, but if we try to average these figures in the meanwhile, it might indicate that he would be prepared to spend, say, £11¼ per annum for, say, 325-375 net therms (8.49d. to 7.36d. per net therm). Below 325 therms the tenant might have to supplement the district heating at times with gas or electricity, if a "well heated" house is to be aimed for. There is no technical reason, of course, why district heating should not be supplied merely as background heating, but in the writer's view the total cost to the tenant for d.h. background heating plus topping up with gas or electricity will exceed that of supplying the total heat by district heating only. Moreover, it might be doubtful practice to let a new tenant pay an all-in charge for district heating, only to find later that he would have to face further expenditure on topping up.

12. A suitable average quantity of hot water to be supplied daily is thought by the writer to be 40 gallons raised from 40 deg. F. to 140 deg. F. Assuming no meter in the house, then steps must be provided to deter a greedy tenant from wasting it, and the simplest means is by the calorifier. If the recuperative period be fixed at, say, 3 hours for a 24 gallons calorifier, this means that if the whole 24 gallons be drawn off at the same time, he will have to wait an hour for the next 8 gallons, and so on.

Twenty-four gallons of 140 deg. F. in the calorifier appears ample when it is remembered that 16 gallons of cold at 40 deg. F. can be added, to make 40 gallons at bath temperature, *i.e.*, 100 deg. F., giving two 20 gallons baths immediately following each other (especially as 12-15 gallons is ample for a bath in a house of this type. In any case, clothes boiling would still have to continue by gas or electric copper at the tenant's cost.

13. It seems obvious that each tenant on an estate must be compelled to use district heating, or at any rate to pay his share, if regard is to be had to economic running of the scheme. If a scheme were laid out for 500 houses and only 100 householders made any use of it, the overhead costs, spread among the few, would make the price per therm excessive, and it is in the common interest that all share alike.

14. For this same reason, metering is not recommended, but rather that each house should be supplied with as much heat and hot water as desired, up to a predetermined and thermostatically controlled maximum; in this event the expense and upkeep of a costly integrating meter in each house is avoided, and a big volume of accountancy is cut out as the tenant's standard weekly assessment is collected with the rent. It is believed that the saving on no meter installation, no meter maintenance and no meter accountancy is at least as great as the value of the extra heat consumed in the absence of meters. Further, by piercing the radiator valves with a fine hole, it is possible to circulate a small quantity of water through them to prevent frost damage on cold nights, even if the tenant has shut off the valves, and many tenants might object to this quantity registering on their meters.

15. The question whether any particular scheme should or should not be self-supporting is largely a political one, though, so far as the writer is aware, local authorities have not attempted to subsidize gas or electricity supplies to Council tenants in the past. If the view is taken that a well warmed house is as much a necessity as, say, educational facilities or a subsidized milk supply, then a district heating scheme must be designed to a standard regardless of cost, and the tenants need only be required to pay as much as their means permit. On the other hand, if the view is held that, unless district heating compares favourably with all its competitors, not merely in price per therm, but also in total cost per week or per annum, then it is equally clear that district heating must be limited in its application to sites where local conditions permit this to be achieved.

16. In the writer's view, district heating for semi-detached villa development at 12 to the acre is unlikely to be low enough in cost per week to justify its existence without a subsidy, but at denser development, particularly where large blocks of flats replace the villas, it should readily hold its own. It must be emphasized that cost per week to this class of tenant in many ways is more important than cost per therm, even if it means that not all the house be heated; nor must sight be lost of the fact that unless conditions are favourable for cheap district heating, individual coke boilers and radiator systems appear to be cheaper and, moreover, give the poorer tenants an opportunity to economise, by not having the boiler in continuous use if they cannot readily afford it.

17. The cost of district heating can be greatly reduced without a subsidy if generous supplies of waste heat are available. If merely the cost of coal were omitted, the figures in paragraph 7 would be:—

823 net therms cost	£10.100	instead of	£17.170 p.a.
637	„	„	£10.348	„	£16.768 „
647	„	„	£8.612	„	£14.442 „
511	„	„	£8.578	„	£13.938 „

and in terms of "equivalent comfort" therms, Paragraph 9,

481 therms at	£10.348	give	5.16d. per therm.
454 „	£8.578	„	4.03d. „

which would make the case for district heating unanswerable against the £8.702 in Paragraph 10 for which a tenant received only 139 net therms.

18. The waste heat available from refuse destruction is disappointing, but not negligible. On the schemes with which the writer was concerned, there existed nearby a destructor capable of burning a net 6,770 tons of refuse per annum, or, say, a gross 10,000 tons collected, allowing for the amount lost by salvage and dust separation, etc. This would represent the collection from about 40,000 persons or 11,000 houses.

The estimated quantity of waste heat available, after installing special boiler fitments, amounted to between one-quarter and one-third of the total required in the district heating schemes for the 500 houses referred to, and resulted in a net saving of £1.336 per house per annum. On these figures it would appear that the refuse from between 30,000 and 40,000 houses would be required to provide the entire heat, etc., for 500 houses, or the refuse from between 60 and 80 houses for each house to be heated, and that a net saving of £5 or more per annum per house heated might be expected.

19. The question of thermal insulation in the house is much to the fore at the moment, and where improved insulation can be effected without increased cost, it is greatly to be recommended. The provision of wood blocks on concrete at ground floor level, the addition of felting and boarding to the roof tiles, and the provision of high insulation foam slag blocks to form the inner skin of brick cavity walls are all measures which would reduce fuel consumption; but it is by no means clear whether the extra costs involved, calling for additional rental or annual payments, may not amount to nearly as much as the cost of the fuel saved. Some of the forms of wall panelling now available must be regarded as unsuitable in this class of property, on account of possible bug infestation.

20. The application of district heating to existing estates would hardly appear to be practicable unless economics are to be ignored. Existing houses already have their heating and hot-water apparatus, on which loan charges still run, and, moreover, it would be much more costly to install new apparatus now instead of at the time of the building of the houses. Likewise, it would be more costly to install mains and ducts in existing carriageways and footways than in virgin ground. Lastly, it would be a matter of some difficulty to convince all the existing tenants that the proposed alterations would be to their benefit.

21. In terms of therms delivered to the house, the overall coal efficiency of district heating is between 40 per cent. and 50 per cent. on the schemes designed by the writer, but might well exceed 50 per cent. on a more densely built up housing site. In terms of therms usefully consumed by the tenant, the overall coal efficiency appears to drop below 40 per cent. Viewed in terms of conservation of the nation's coal, district heating is therefore superior to electricity and most open hearth coal burning appliances, and comparable with gas and coke.

But efficiency is not merely to be measured mathematically: regard must be had to other factors such as the relative amenity of radiators within the house in place of fires, amenity without the house in terms of smoke abatement, the hygienic value of a good hot water supply, the elimination of labour to the householder, and so on, and individuals will differ considerably in the values for or against district heating which they attach to such matters.

The costs given in these notes are based on 1939 conditions, and the present relationship between district heating, gas, electricity, and coke boilers may well have changed permanently since then; but in the writer's view some time must yet elapse before sufficient stability of prices is reached on which to determine this new relationship.

PHYSICAL PLANNING SUPPLEMENT

The new plan for Warsaw, reviewed on the following pages, formed part of an exhibition arranged by the Polish Embassy, which is now touring the country and had its London showing at the Housing Centre in February. The old Warsaw, a fine baroque town, of which the former Town Hall is shown above, no longer exists to-day. Eighty-three per cent. of its buildings are destroyed. The rebuilding of a completely new capital city is a most formidable task, and has been met with boldness and imagination, as the following illustrations will testify. (The two diagrams at the foot of the page, showing the geographical position of Warsaw, are taken from Syrkus' functional plan for Warsaw, 1936.)

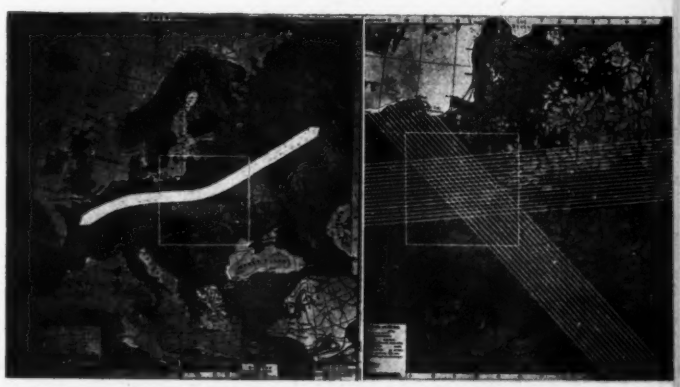
A PLAN FOR WARSAW

When a country has had its capital invaded and destroyed, a plan for rebuilding it is more likely to be an ardent act of self-assertion than a detached study in town planning, a work of the heroic rather than the contemplative temper. The Warsaw Plan, due to the circumstances under which it was born, and the ethnological factors which had a shaping influence on it, differs greatly from English planning schemes, which happen to see the light of day in a less tense atmosphere. These, let it be said, rarely succeed in exciting the imagination with their visual qualities. How different the Warsaw Plan. Here is an intensely dramatic scheme, a work of plastic imagination, recalling to mind the city visions of Le Corbusier and his followers. This is not the routine job of a diplomat who has to appease land interests as well as local authorities in the dark as to the government's land policy, nor even that of a sociologist appeasing mass appetites investigated by painstaking survey. The Warsaw planners are working with full powers of land acquisition, and in the general destruction social taboos, one imagines, have been swept away.

The creation of a new and bolder city, after the years of national obliteration, is a vital step in the process of national rebirth. That this is fully recognised is borne out by the interest taken in the plan by the public and the government. The weekly periodical of the reconstruction office reporting on progress of the scheme is one of the most popular publications in Warsaw today, and the planners have direct access to the cabinet.

The surest way to gain support for a plan among non-professionals is to show them, as attractively as possible, what the results of the plan will be in three dimensions. It is fortunate therefore, and perhaps not altogether a matter of accident, that this is to a marked degree a visual plan and that an architect-designer was in charge of the scheme.

It will be remembered that Warsaw was the first capital city to be attacked from the air in this war. German guns forced the entry into the city, and later on, near the end of the war, the ghetto was fought over, destroyed, and an



THE CENTRAL AREA AND GREATER WARSAW

Above, the new Greater Warsaw. The old city site (1), the new city (2), the university and cultural centre (3), and the political centre (4) form the nucleus of the town. In the north-east, there is a harbour (5); three industrial areas (6) are grouped adjacent to the harbour, and to the east and west on the west-east transport artery. Two airports (8) are situated in the south-west and the east. The residential groups are planned in close relation to the work areas. On the right, Greater Warsaw in the Warsaw region, showing the transport plan.

attempt was made to wipe out the rest of the city by fire. Unique buildings, sacred and profane, many of them dating back to the medieval and baroque period, fell victims to the flames. To-day the clearance of 20 million cubic metres of rubble has started. The office for the reconstruction of the capital has been set up in Warsaw. It has produced the plan as a programme for a 10 years' reconstruction effort, of which one year is allotted to preparatory work and three three-year stages for the carrying out of the plan.

continental links

The main constitutional factors of importance to the life of Warsaw are the same as before. They are a favourable geographic position, both nationally and internationally, good climatic and geomorphological conditions, and a dramatic contouring of the site, which is important to the town picture.

Warsaw lies in the great highway, which stretches in a west-east direction from the Atlantic coast into the heart of Russia and the Asiatic continent beyond. On it lie such important centres as Paris, Cologne, Berlin and Moscow. A further axis can be traced in a north-south direction, which intersects the west-east axis in the Warsaw region, and provides a link between the Baltic and the Black Sea, following the courses of the rivers Vistula and Dniester. From the point of view of the Warsaw region itself, the latter, although less important economically as a transport line is nevertheless the more significant since it affects the town structure in a decisive manner. The river bed and the escarpment running in the north-south direction are perhaps the most important single feature affecting the character of the city.

The Warsaw town group, like our own conurbations, is a cluster of small towns and villages which have grown together in the unplanned expansion of the last decades. It now extends to a radius of 30 km. from the centre of Greater Warsaw and accommodated before the war two million people, approximately half of which lived in Greater Warsaw itself. An equal number of people are to be housed in the replanned Warsaw region.

The geomorphological picture of the region shows in the east, on the right river bank, a terrace formation of dunes partly covered with coniferous forests, of sandy soil, suitable for recreation areas. Further north there is flat land near the river, suitable land for industry. In the north-west between the escarpment and the river bed, unique forest land would, if drained, provide another recreation area; also in the north-west, fertilised by the lime of the Vistula, there is good land for market gardening and fruit growing. To the south-west there is good agricultural land.

general features of the plan

The main function of the new capital is that of a governmental and cultural centre, and only to a very minor degree that of a light industrial centre. The general disposition of the principal town organs is as follows: the City proper is grouped around the historic nucleus on the escarpment above the left river bank, with a foothold on the opposite bank: An educational and cultural centre is provided on the south-western fringes of the centre, a leisure area between the escarpment and the river, and three industrial regions, one to the north-east, one east and one in the west alongside the east-west transport artery. The residential quarters are distributed in strongly defined groupings on all sides of the city.

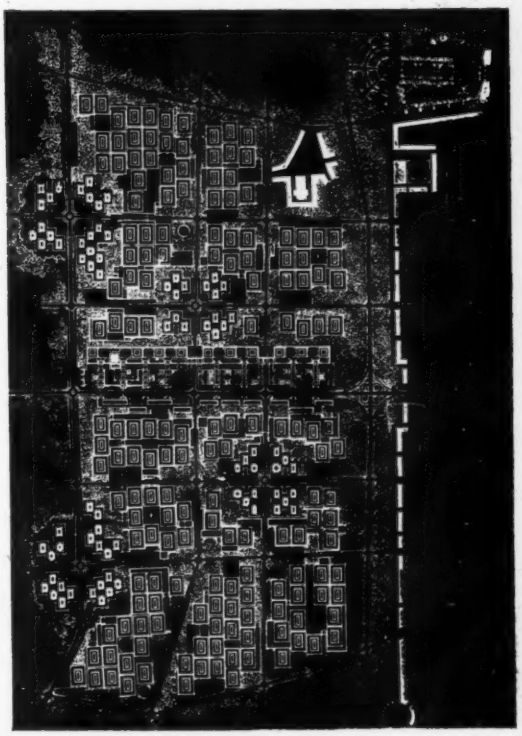
transport system

The transport system is aligned on the north-south (national transport) and on the east-west (international transport) axes. The north-south communications are provided with a transport line on both river banks. The river itself is crossed

at five main points in the Warsaw region. The west-east artery, carrying mainly international transport, runs underground in the city area. The local main lines are accommodated in open ditches. There is a ring system for goods transport, which connects the industrial areas. Two motor-highways, one running north-south, the other west-east intersect west of the city. Two aerodromes are provided, in the south-west, and in the east. A pick-up method, by which passengers can board the planes near the centre, whilst the aircraft are serviced elsewhere, is envisaged.

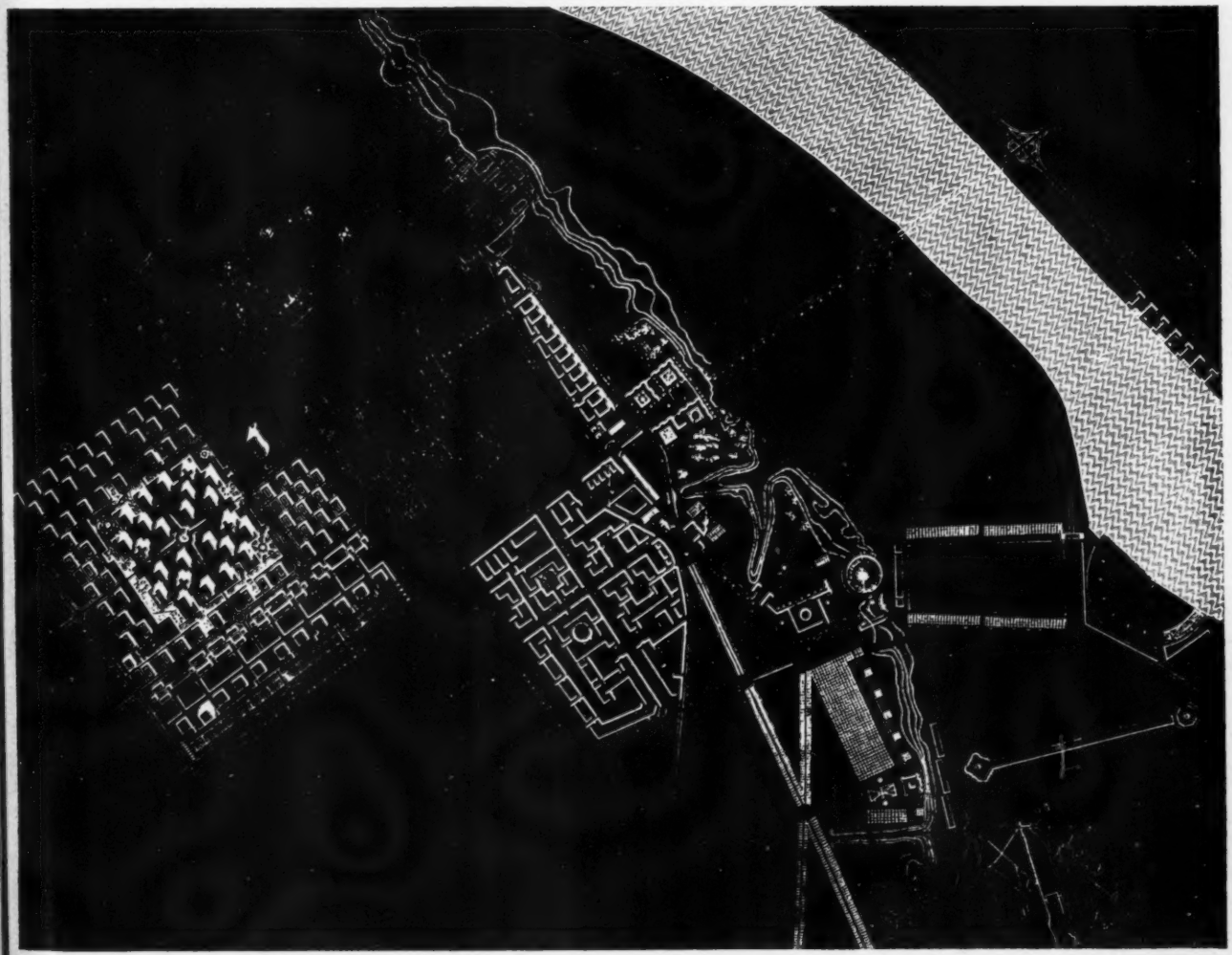
the city centre

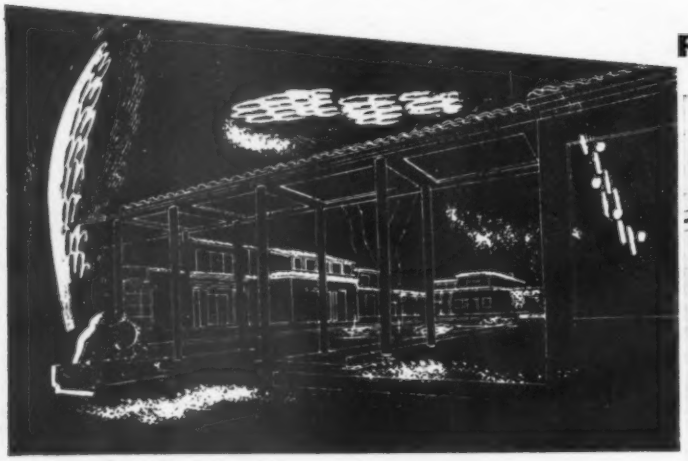
The centre consists of the old city-site, the new business centre, the administrative district, and the political centre containing parliament and a forum for mass meetings. In the city district, buildings take the form of 14 storey high sky-scrapers, grouped in islands and intersected by two main



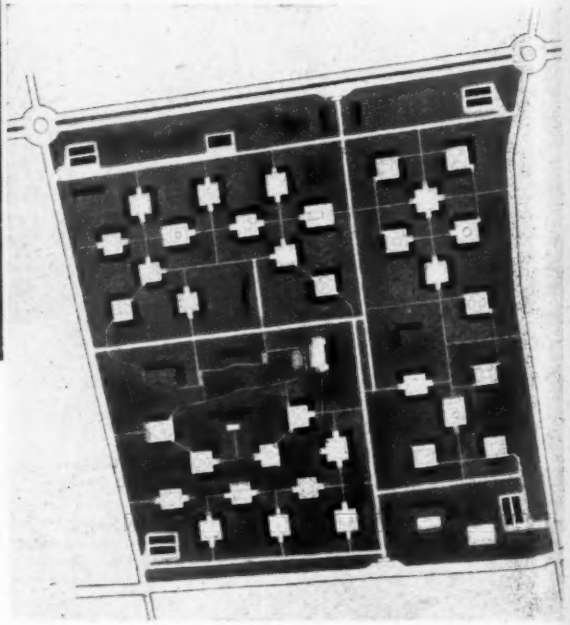
Below, the development of the central area, showing from right to left : the forum for mass meetings in half-circle shape, further up on the escarpment, the Parliament, the administrative district and the new centre of commerce. On the right : an alternative plan for the commercial centre.

DETAIL PROPOSALS FOR THE CENTRAL AREA





RESIDENTIAL AREA



Above: a view showing the appearance of the patio arrangement in a domestic colony. On the right: the layout of a residential group, arranged in closes, and with separation of vehicular from the pedestrian network.

arteries. The administrative district consists of four-storey high blocks, free-standing or arranged to form courtyards. Through traffic is segregated from access traffic and the interior communication-network.

educational and cultural centre

This has been given a lavish layout. A university is planned in conjunction with a central hospital and medical centre, academies of science and the arts, an open-air theatre and sports facilities. (The Americans who had offered to help with the reconstruction of the city, will choose this district, the Russians, the industrial district.)

industry

Industry in the Warsaw region is not of the heavy type. The main industrial area lies on the right river bank to the north-east, adjacent to the harbour on the Vistula. This area is given to public utilities, electro-metallurgical processes, scrap utilisation, etc. The industrial areas in the east and the west are for lighter industry, such as clothing, food, etc., and are mainly run on electricity.

residential areas

The residential areas are grouped in close relationship to the work areas, so that each professional or other work unit has its residential quarters nearby. Thus the residential area is split up into a series of large units, which are again sub-divided on the neighbourhood principle. The basic unit is that for 1,000 families, a larger one for 6-8,000 people, and still larger units of about 60,000 people. The units are provided with a local range of communal facilities corresponding to their size. The buildings in the central residential areas are four storeys high; in the outlying districts two storeys high and arranged in a series of small closes. There is careful segregation of vehicular and pedestrian traffic.

open spaces

Open space is arranged in main strips running in a north-south direction, and in a series of subsidiary ones. To the south-east of Greater Warsaw are the recuperation areas (beneficial for respiratory diseases). The area between the escarpment and the river bed is developed as a leisure area, containing such attractions as a museum of regional culture, with full scale examples of regional types of settlements, similar to that in Copenhagen.

visual planning

The most remarkable point about the Warsaw plan is the degree to which it has been worked out in terms of architecture. This is always important, but especially so in the case of capital cities, where national entity and the character of a society, should be demonstrated in visible form. That this has been achieved in a singularly dramatic way, was to be expected from a knowledge of Poland's history, a tragic sequence of disaster and resurgence, and of the genius for the colourful gesture of the Polish people.

An important aspect, in which the Polish conception differs from the English, is the full-hearted acceptance of the metropolitan city, whilst the western democracies in a different stage of their history are trying to break it down. The great city, as a type, however, seems the functional urban form for the concentration of power needed in establishing the new Polish state. This provides the keynote for the visual character of the new Warsaw. Expressive of this tendency is the new city core, the skyscraper district, reminiscent of the administrative head in *la ville radieuse*. In many other respects is the Warsaw plan reminiscent of Le Corbusier, especially in its formal conclusiveness, about the desirability of which no equivocal answer can yet be given. There are many features in the plan (*e.g.*, the problematical arrangement of the domestic closes) about which English designers would feel doubtful. Above all, perhaps, the character of its architecture, which is not so much renaissance in form as Roman. Equally the monumental layout of the social space in *parterres* would not seem desirable to the modern English informal school. Le Corbusier's cities, in comparison, are more congenial, because less static and mellowed by landscaping of the *jardin anglais* type.

But the characteristics mentioned are an integral part of the Polish planner's conception and as such are deliberately willed. The splendour of the new city derives from them, and the magnificent view to be obtained from the southmost bridge looking northwestwards, with the succession of stepped-up visual effects, the forum by the river, the parliament and administrative district above, topped by the skyscrapers, will be something to be envied by any of the capital cities in the world.

g. m. k.

CINEMA

IN OSLO

DESIGNED BY OVE BANG

The Sentrum Cinema, Oslo, was built in 1940 but was not opened to the public until Boxing Day, 1945. Previously, it had been used as an army cinema by the Germans—later by the Americans, and most recently by the British. It is here illustrated for the first time.

The Sentrum—briefly referred to in Alec E. Davis's article on *New Buildings in Oslo* (A.J., September 27, 1945)—occupies the centre portions of the basement, ground floor and first floor of a large block known as Torvgaten 17, which contains also flats, conference rooms and a concert hall. Ove Bang, architect of Torvgaten 17, died in 1942.

The exterior of the cinema is mainly of aluminium and glass bricks. On either side of the entrance there are neat display-windows for posters.

The foyer has ticket offices on both sides of the entrance. Built into the end wall are a large clock and a loud-speaker which relays music played in the intervals, for the benefit of patrons waiting in the foyer. Walls and ceiling of the foyer are finished in off-white plaster, while the pillars have a glossy surface of light blue. The floor covering is rubberised and has a white surface, lightly patterned. Part of the foyer is under the gallery: hence the sloping ceiling at the rear.

In the auditorium bold lighting plays an important part in the decorative scheme. For the main lights—three on either side—the lamps are mounted in metal shades on curved projecting brackets. They throw their light directly on to white discs, indirectly lighting the greater part of the auditorium, and causing the discs to stand out boldly against heavy shadows immediately around them, which merge gradually into the Wedgwood blue of the walls.

This Wedgwood blue continues across the forepart of the ceiling, where it is broken up by white-rimmed holes through which stale air is extracted. Diagonal dado panelling in a lighter shade of blue also helps ventilation, as it is of fabric through which air can pass. Above the gallery are lights recessed in the ceiling which is here panelled in pale ash. The same wood is used on the walls (up to shoulder height) and for the seats. The wooden panelling of the aisles is surmounted by a chromium-plated handrail. Illuminated row numbers are recessed in the steps.

Top, the entrance foyer. Above, the entrance, mainly of aluminium and glass bricks. Right, the gallery panelled in ash.

CINEMA IN OSLO

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

2452 **Estate Planning**

PRACTICAL PLANNING OF ESTATES. *Stanley Gale.* (*Architectural Design and Construction, June-December,* 1944, *inclusive; January-December,* 1945, *inclusive; January,* 1946.) Series of articles giving quick and concise references on information contained in Government Acts, Orders, Regulations, Memoranda, and Circulars relating to various aspects of Housing and Planning, including building density, design of roads and sewers, finance and administration of housing estates, and housing design. (The series is continuing.)

No. 1: *Building Density* (June, 1944). Density as defined under the Model Clauses of the 1932 Town Planning Act and the methods by which to control density are explained. Tables show (1) the minimum sizes of plots for a given density, and (2) housing densities for houses with a total floor area from 750 to 1,000 square feet giving the comparative values for (*a*) area of house covering the ground, (*b*) area of private garden attached to it, (*c*) spacing apart of houses, (*d*) area of house plot, (*e*) area of street per house, (*f*) total area per house, (*g*) the resultant density per acre, (*h*) the area of open space per 1,000 persons, (*i*) net density per acre, and (*j*) population density taking five persons per house. A third table gives a percentage layout analysis for buildings, gardens and streets in relation to given densities. In addition a density graph of land units is shown by means of which it is possible to read at a glance, length and breadth, in feet, of building plots according to the building density required.

No. 2: *Layout, Design and Construction of Roads* (July, 1944). Two hypothetical road layout plans, a pre-war and a post-war layout, are shown to illustrate the progress of modern road planning towards integrated civic design. The principal types of road construction are described and information is supplied on carriageway surfacings, kerbs, channels, and foundations, with particular reference to the advances in the use of concrete roads for new estates. Recommendations are made for the suitable construction of footpaths and verges. The widths of estate roads as generally fixed by town planning regulations and also by local by-law requirements are illustrated in a drawing showing respective road sections.

No. 3: *Design of Sewers* (August, 1944). The three systems of drainage, namely, the combined, the partially combined, and the separate system, are described, and full information is given on how to arrive at fairly accurate sewer flow calculations for the average housing estate, including stormwater drainage and stormwater calculations. In order to comply with the requirements of the Public Health Act, 1936, as regards adequate drainage of new estates, it is necessary to collect all the relevant data concerning the physical conditions of a site, and a practical example of a drainage system for a proposed housing estate is illustrated to demonstrate procedure. A useful table gives sewer capacities, gradients and velocities, and number of houses and acreages served by sewers, together with the assumptions on which the calculations are based.

No. 4: *Types of Houses and Some Aspects of Design* (September, 1944). A survey of housing standards during the inter-war period refers to the Tudor Walters Report and to the size of houses as recommended by the Ministry of Health until 1936. Present-day housing requirements are examined, and reference is made to alternative methods of construction as dealt with in the Burt Report on House Construction. A special paragraph is devoted to the design of flats.

No. 5: *Finance and Administration of Estates* (October, 1944). A short reference to rateable values and subsidies is followed by a detailed description of the methods by which money is obtained to finance estate development. A history of the various Housing Acts since 1919 and their effect on the finance of housing is given. Other points include an analysis of building costs in 1939, the increase in costs since, suggestions as to how to reduce building costs in the future, and how to raise money for housing.

No. 6: *Legal Regulations affecting Estate Management* (December, 1944). A summarized account of the legislative measures affecting estate development provides information on the Planning Acts since 1909; the 1936 and 1938 Housing Acts; the Housing (Temporary Accommodation) Bill, 1944; the Public Health Act, 1936; the Private Street Works Act, 1892; and the Restriction of Ribbon Development Act, 1935.

No. 7: *Principles of Layout Design* (January, 1945). A synopsis of site planning requirements based on the 1932 Town Planning Act and the 1932 and 1938 Model Clauses contains notes on the preservation of natural amenities and on road design. The plan of Port Sunlight is shown as an example of a well-planned estate in which the arrangement of houses is as important as that of the streets. Other illustrations give diagrams of street widths for various types of roads and several combinations of road types.

No. 8: *Design of Small Sewage Works* (February, 1945). Districts in which no proper sewerage system and sewage disposal works are available have to devise their own methods of dealing with sewage disposal. The theory of sewage purification is explained, and details and illustrations of cesspools, septic tanks and small sewage works for rural districts are given, followed by a general diagrammatic description of a large sewage disposal works.

No. 9: *Economies in Layout Design* (March, 1945). Estate roads must be carefully planned to effect a saving in capital costs. It is important to reduce the length of roads and sewers to a minimum to serve the greatest number of houses. The cul-de-sac is recommended as a most economic layout pattern. Illustrated examples are given showing layouts suitable for various shaped plots, together with a layout consisting almost entirely of cul-de-sacs. Reference is made to some principles of layout design as contained in the *Housing Manual, 1944.*

No. 10: *Estate Amenities* (April, 1945). Development plans should fit in with the existing natural conditions of a site and make use of them from an amenity point of view. The adequate provision of open spaces, the value of light and air adjacent to buildings, and the architectural appearance of buildings all contribute to the amenities of an estate. Reference is made to general site amenities as recommended in the *Housing Manual, 1944, e.g.,* retention of existing trees and the quality of new planting. The plan of the Bournville Village Trust Estate is given as an example of a good layout which incorporates parks, recreation and sports grounds, etc., as desirable amenity features.

No. 11: *Planning Model Clauses* (May, 1945). The meaning and application of the Model Clauses issued by the Ministry of Health in 1938 for use in the preparation of Town Planning Schemes are explained under the following headings: Building Restrictions and Use of Land; Density; Space about Buildings; Height of Buildings; Appearance and Siting of Buildings.

No. 12: *Submission of Plans for New Streets and Layouts* (June, 1945). An outline of procedure for the submission of plans to local planning authorities and local council surveyors for formal approval is described, referring to various Acts, Regulations and By-laws. Other points include the lodging of town planning appeals, the effects of the Town and Country Planning Acts of 1943 and 1944 on procedure, and in particular the application of the Ministry of Health Model Clauses and Amendments in respect of new streets and buildings. An illustration shows the type of block plan which should be prepared for submission.

No. 13: *Notes on Layout, Location and Design* (July, 1945). Information and diagrammatic illustrations are given for four main types of estate layout, namely, rectangular or grid-iron, spider's web or radial, geometrical, and contour. The arrangement of houses is examined from the point of view of economy of road frontage, and the advantages and disadvantages of terraced, semi-detached, and detached housing are put.

No. 14: *Important Aspects of Estate Development* (August, 1945). The selection of land for estate development requires preliminary investigations as to its suitability as a housing site. Important aspects to be considered in this connection are described under the following headings: Area required according to the estimated number of houses; local geological factors; physical factors, such as the topography of the area and its contours; water resources; availability of public services; the risk of subsidence in mining areas. A further paragraph is devoted to planning in country areas, quoting certain recommendations from the Scott Report.

No. 15: *Drainage Design* (September, 1945). The preparation of a drainage scheme is described, giving details of the various systems that may be adopted, and supplying information on foul sewer and stormwater calculations, on the reconnaissance of the area to be drained, and on the taking of levels. A table is included showing briefly the sizes of sewers of varying gradients and velocities, together with their capacities flowing full.

No. 16: *Road Design and Construction* (November, 1945). Suggestions are put forward for the laying out of building estate roads bearing in mind not only gradient and surface of carriageways, but also the provision of maximum sunlight for the houses by means of suitable orientation. Other

points dealt with include design and upkeep, and width of paving and tree planting. Particular reference is made to the Model Specifications issued recently by the Institution of Municipal and County Engineers with regard to the construction of roads, giving details of tarmacadam, asphalte or bitumen, and concrete roads.

No. 17: *Housing. Standards and Design* (December, 1945). A description of English housing development since 1839 is given under the following headings: Historical; Public Health Act, 1875; Garden Cities; Tudor Walters Report; Sizes of rooms and housing standards; Ministry of Health housing standards, 1919-1935; Standards of accommodation as laid down under the Housing Acts of 1935 and 1936; The Report of the Scottish Housing Advisory Committee, 1944; The Housing Manual, 1944.

No. 18: *House Drainage Points* (January, 1946). Modern principles of house drainage are considered, with particular reference to the laying of drains, the materials for drains, the "sectional drainage" system as suggested in the Tudor Walters Report, and the recommendations contained in the Technical Appendices to the 1944 Housing Manual. Diagrams show a sectional system of drainage, a system of separate drainage connections, and a sewer sizes and capacities chart.

STRUCTURE

2453 **Spun Concrete**

REINFORCED CONCRETE SPUN PIPES IN ARGENTINA. *Mario Ninci.* (*The Engineer, December* 21 *and* 28, 1945, *pp.* 501-503, 523-4.) Experience with spun pipes in aqueduct of 104 miles.

One of the most interesting public works recently undertaken in the Argentine is a great aqueduct in the Province of Cordoba. It has a capacity of 3,800,000 gallons per day. The pipe used on the greater portion of the work has the following characteristics:—An internal diameter of 23⅛ in., a wall thickness of $2\frac{7}{16}$ in. a length of 11 ft. 6 in., a working pressure equal to a 40 ft. water column. The total aqueduct required 48,000 pipes. A manufacturing plant was erected for the production of 80 to 100 pipes a day from five similar spinning machines. The article describes details of manufacture and stresses the importance of curing for obtaining complete impermeability. Many experiments were made to determine the most suitable method. The curing process adopted consisted of six hours in the steam chamber, five days in a tank filled with water and ten days moistening.

2454 **Expansive Cement**

L'UTILISATION DE CIMENTS EXPANSIFS POUR LA REPARATION ET LA RECONSTRUCTION D'OUVRAGES D'ART SINISTRES. *R. Lévi, H. Lossier.* (*Le Génie Civil. October* 15, 1945, *pp.* 153-155. *See also The Engineer, December* 14, 1945, *pp.* 484-485.) Repair of bomb-damaged structures in France by using expansive cement.

The article describes the repair of several bridges where expansive cement (see No. 1,900:26.4.45) was used instead of, or in combination with, hydraulic presses, to produce stresses which acted in the structure before it was damaged. Some of the bridges referred to were arches in masonry, some continuous beams in reinforced concrete. In one of the examples, the repair of a heavy crane gantry, the expansive cement needed was not available because of the partial destruction of the factory, and four hydraulic presses of 50 tons capacity each had to be used. This necessitated four separate operations as against one single operation with expansive cement.

LIGHTING

2455 **Hospital Lighting**

HOSPITAL LIGHTING (DATA BOOK). *USA Trade Literature.* (*Edwin F. Guth Co.*, 2615, *Washington Avenue, St. Louis.*) Catalogue of all types of hospital light fittings. Interesting for inclusion of fittings for the new germicidal lamps.

2456 **Hospital Lighting**

ADVANCES IN HOSPITAL LIGHTING DESIGN. *I. Rosenfield.* (*Pencil Points, July*, 1945, *p.* 84.) Bed lighting, night lights, operating room lighting.

Traditional methods of hospital lighting are analysed and found unsatisfactory in respect of glare, maintenance, dust collection and layout.

The needs of bed-lighting are shown to be the placing of most of the light on the patient, without glare to other patients, and in the use of non-breakable fittings. It is important to distinguish between the lying-down position and sitting-up (generally the former is neglected in designing lighting). Practical experiments were made. The best position for the source seemed to be about 7 ft. above the floor, behind the patient's head, because this would give light to the patient in any position, and also enable medical inspections to be made without special light. Ceiling lights proved entirely unacceptable because of high brightness-contrasts between fittings and the unlighted ceiling surfaces surrounding them.

In the type of hospital for which the lighting was intended in this case the beds were placed head to head, divided by screens. These were about 7 ft. high and it was decided to use them for lighting by mounting fittings along the top edge. After trials it was decided that the best arrangement was to use a long reflector, with fluorescent tubes inside, designed to let some light go to the ceiling but with the main part going downward on to patient and bed through louvred slots, the louvres to reduce glare to patients opposite.

Night lighting is mainly a problem of aisles and corridors. Common practice was to use lower-power bulbs in ceiling fixtures, but this disturbs patients asleep. Better practice is to use wall fittings about 18 in. from the floor, with louvres to prevent glare and to direct light downward, and a glass screen to keep the unit dust-free. A new idea is reported of using a clear plastic incorporating louvres.

In operating rooms instead of the now common dome type unit with circular bactericidal tube, the dome had a hole in it to permit the upward-flowing air to pass by the bactericidal lamp. This has a second advantage that air-flow is away from the patient so that bacteria not destroyed are carried away. Also it reflects less heat on to the surgeon, nurses and patient. Auxiliary UV sources are fitted on the ceiling.

Laboratory and autopsy lighting are discussed.

PLUMBING and Sanitation

2457 **Disinfestation**

NEW REMEDIES IN DISINFESTATION. *Dr. J. L. Burn.* (*Journal of the Royal Sanitary Institute, January*, 1946.) Trials of DDT on large grossly infested building. Part of building left untreated as control. Long-term toxicity of DDT demonstrated. Use of DDT against flies and cockroaches. Notes on Naples typhus epidemic, Gammexane, Tetmosol soap.

2458 **DDT**

THE USE OF DDT AS AN INSECTICIDE. *Col. M. H. Webster.* (*Journal of the Royal Sanitary Institute, January*, 1946.) Chemical nature and history of DDT. Its wartime development. Toxic effect on insects. Various methods of use. Addition of DDT to distempers and paints. Control of specific insects: flies, lice, bed-bugs, cockroaches, fleas, mosquitoes.

Col. Webster was Assistant Professor of Hygiene at the Royal Army Medical College, and closely concerned with the experimental and development work on DDT for Service use. This is a detailed and authoritative survey of present knowledge of the powers of DDT, and the most effective methods for its use. Paints of lasting insecticidal power have yet to be produced, but much experimental work is being done. The admixture of DDT with distempers and whitewashes is more promising.

HEATING and Ventilation

2459 **Factory Services**

FACTORIES—SERVICES. (*Architectural Record, November*, 1945.) Long article by members of Albert Kahn Ass. Architects. Rather general in nature but containing notes on lighting, heating and other services.

2460 **Laboratory Services**

RESEARCH LABORATORIES—SERVICES. (*Architectural Record, November*, 1945.) Descriptions of several USA Research Laboratories. Well illustrated with considerable detail on services. Valuable reference.

2461 **Laboratory Services**

LABORATORY SERVICE PIPING. (*Architectural Record, November*, 1945.) Time-saver standards information sheet on services. Detailed plans for Firestone Tyre and Rubber Co. Laboratories, Akron, Ohio.

2462 **Gas Industry**

THE BRITISH GAS INDUSTRY, PRESENT AND FUTURE. *Joan Mitchell.* (*Fabian Publications Research Series No.* 103, 1*s.* 0*d.*) Useful 32-page review of industry as it is, its problems and plans for future.

2463 **Air Filters**

AIR FILTERS. *Trade Literature.* (*Visco Engineering Co., Stafford Road, Croydon. Catalogue No.* 454.) General description and illustrations of standard static air filters and some descriptions of other types.

2464 **Skirting Heating**

"BASE-RAY" HEAT PANEL. *USA Trade Literature.* (*Burnham Boiler Corp., Irvington, New York.*) Two-

page brochure illustrating cast iron baseboard (skirting) heat units. Interesting type of heating being developed by number of USA firms.

2465 *Panel Heating*

WROUGHT IRON FOR RADIANT HEATING. *USA Trade Literature.* (*From A. M. Byers Co., Pittsburgh.*) Useful brochure setting forth advantages and methods of panel heating. Many illustrations of installation work in progress and some technical data.

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.*

2466 *Factory Floor*

Q *We have recently acted as Architects, in the construction of a Potato Factory, used for transforming the raw material into potato flour. During the processing, some of the waste material in its mashed form, comes in contact with the floor, the surface of which is now showing signs of wearing in these particular places. The floor surface is 1½ in. thick* Grano *composed of 5 parts ¼ in. granite chippings, 1½ parts grit sand and 2 parts cement. We should be glad if you could let us know whether there are any chemicals in the potatoes which would act against the cement, and any suggestions for a suitable floor finish. The mashed potato is very adhesive and it may be that the amount of scraping to clean the floor is one of the causes of the wearing.*

A We consider it unlikely that any chemical action is taking place although if the floor was used before it had crystallized it is just possible that the starch and vegetable juices might have caused some deterioration.

We do not think that the specification was ideal. Some specifications call for chippings and cement in the proportion of 5.2 and others call for a small additional quantity of dust, but 1½ parts of grit to 5 of chippings is in our opinion excessive, and it is probably this excessive quantity of grit which is causing the surface to dust away where it is subjected to the scraping process.

Whatever the cause of the defects may be, we think that the best remedy is a floor hardener applied as a surface dressing or incorporated in a ½ in. topping of new granolithic. Any one of the well-known brands of floor hardeners would do the job and the manufacturers would advise you on learning the extent of the deterioration that has already occurred. A list of floor hardeners with names and addresses of manufacturers can be sent to you on request.

2467 *Factory Acts*

Q *Is there any text-book dealing with the Factory Acts, on the same lines as* Model Building Bye-Laws Illustrated *by Eric Mitchell.*

A There is no book dealing with the Factory Act on the lines you describe.

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.

SESA

Dr. Roland Woods

At the Guildhall, Kingston-on-Thames. Meeting of the South Eastern Society of Architects, Kingston and District Group of the Guildford Chapter. Talk on THE WORK OF THE CODES OF PRACTICE COMMITTEE, by Dr. Roland Woods, M.B.E., LL.D., Director of the Codes of Practice Committee for Building and Civil Engineering.

R. Woods: Some Chapters of Codes are to be devoted to the functional planning of various types of building, commencing with those of the highest priority. These are known as the Space and Circulation Chapters. Then there are to be Chapters on Daylight, Sunlight, Ventilation, Heating and Acoustics. Other subjects to be dealt with will be Noise and Heat Insulation, Fire and Weather Protection, the Services and Deterioration. Additions may be made later. First, Functional Codes are to be published. These are to be followed later by more detailed particulars in General Service Codes. Some of the Chapters have already been published for comment, and in other cases the drafting is well advanced. These Codes are not based on the personal experience of those who draft them. That naturally is not ignored; but it must be remembered that the draughtsmen have at their disposal all the resources of the Building Research Station at Garston, together with access to the accumulated experience of the various Ministries, Government departments, and all the leading professional societies in the country. In fact, even this mass of data is supplemented by information derived from Colonial and Foreign Codes and technical publications from all parts of the world.

The General Series Codes are being drafted by individual institutions and are divided into three main groups:—

1. The Carcase Series of Codes, covering the main elements of the building structure.
2. The Finishing Series of Codes, dealing with what are commonly called "decorations."
3. The Installations Series of Codes, dealing with water, drainage, gas, electricity, and so on.

I should like to explain the relationship between British Standard Codes of Practice and British Standard Specifications. The working arrangement with the British Standards Institution is that, while British Standard Specifications will deal with the standardization of materials, components, and appliances, Codes of Practice will be concerned with the methods of using them. The broad division of functions has now been more precisely stated in the following definitions:

A British Standard Specification sets out the technical requirements with which materials, components or appliances purporting to be in accordance with the BS Specification should comply, and prescribes, where practicable, the tests to be carried out to prove compliance with such requirements.

A British Standard Code of Practice sets out those requirements which are generally recognized as good practice in the execution of building or civil engineering construction. It prescribes the method of use, erection or installation of materials, components or appliances, in view of their properties and the performances for which they are intended; it also deals, where necessary, with structural design methods.

It will be seen that there must be close inter-relation between the work of the Codes of Practice Committee and the British Standards Institution. As far as practicable or necessary, the technical requirements for all appropriate materials, components and appliances mentioned in Codes of Practice will be based on British Standard Specifications where these are available. Where they are not available, the British Standards Institution will be asked to prepare the additional specifications, or where an existing specification is not adequate, they will be asked to make the required modifications, except that in some cases the Code is dealing with some particular material which, whilst chosen because it accords with established building practice, is one for which a British Standard Specification may not be possible.

Thus we see that Standards and Codes are complementary and their development will go on side by side.

Whatever may be the forms and shapes of building codes, however, there are really only three ways in which they can operate in actual building practice:—

1. A Code may be drafted as a mandatory document to be observed and followed under penalty for its infringement.
2. A Code may be drafted without the direct intention of its being mandatory, but in such a way that it may become mandatory, wholly or in selected parts, by inclusion in a document having legal force, for example, as a contract.
3. A Code may be drafted with the intention of being nothing more binding than the setting out of a desirable method of carrying out a building operation, in which event its force is derived from its adoption by consent between the parties, *e.g.*, the building owner, the architect, and the contractor, as an agreed method of carrying out the building work in contemplation.

To illustrate these uses of codes, the first, the mandatory code, is best illustrated in this country by the London County Council Bye-laws, which are in fact a penal code giving very precise instructions on technical matters.

The second, the code which is drafted without the direct intention of being mandatory, but in such a way that it may easily become so, is well illustrated by two examples, with which we are all familiar, *i.e.*, British Standard Specification No. 449 of 1937, for the use of Structural Steel in Building, and the report of the Reinforced Concrete Structures Committee of the Building Research Board dated July, 1933.

These two codes are mentioned in the

Ministry of Health Model Bye-laws as permissible methods of carrying out a bye-law whose legal import requires "due stability" in the walls of a building. If the walls rely for their load bearing capacity upon steel or reinforced concrete, then the bye-law is regarded as fulfilled, provided they are built in accordance with the appropriate code.

There is, however, no penalty associated with the use of this code. It is always open to the architect or builder to secure due stability by any means whatever that will satisfy the building inspector and the appropriate committee of the local authority concerned.

While on the subject of the Ministry of Health Bye-Laws, which are nothing more than a model and do not acquire any legal force until adopted by a local authority, one should mention that certain technical building codes are drawn up in a mandatory shape just as are the Ministry Model, and secure legal force when adopted by local authorities.

These codes are all drafted so that they are suitable like our own Ministry of Health Model for immediate use as penal documents upon their adoption.

We now come to the third way in which codes can operate in building practice. This brings us to the code which sets out a desirable method of carrying out a building operation and is drafted with the intention of being nothing more than this. The force which such a code possesses is derived from its adoption by consent.

It is at this last level that the codes of practice now being drafted by the Codes of Practice Committee will first emerge, and for this reason every code bears on its front page the words, "This Code of Practice represents a desirable standard of good practice, and therefore takes the form of recommendations."

A third question is as to how codes of practice will be kept up to date. The answer is that they are intended to be revised from time to time, just as standard specifications, are subject to revision; consequently the various advancements that take place in the art of building can, and will, be included in codes as soon as the test of time and experience warrants. This potential revision of codes of practice has a very definite relationship with the work of the Building Research Station of the Department of Scientific and Industrial Research.

A comprehensive scheme of building codes covering the whole field of building work will provide a background against which an organized scheme of building research can be undertaken. The use of codes of practice in the field will provide an almost infallible test as to the directions in which research can be carried out with the maximum value to the industry, thus fulfilling a want that has long been felt in the planning of schemes of building research.

Conversely the results of building research by whomsoever carried out, can through the medium of codes of practice and their associated standard specifications be carried effectively and rapidly into building practice where otherwise they might lie dormant in pigeon holes until some accident brought them to light.

Finally, may I say that this work of preparing codes of practice for building and civil engineering presents certain features which are new and most encouraging? It offers for the first time in this country a forum wherein the professional men of all branches of the building and civil engineering industries have had the opportunity to meet together and pool their technical experience to the advantage of the industries generally; and it provides a mechanism by which the results of experimental work and experience can find their way quickly and effectively into practice; the whole trend of expansion in building technique, the new and often almost untried materials and methods which seem every other day to tumble over each other for admission into building practice have made it inevitable that the professional institutions in the industry would at some time have come together to lay down agreed principles for their mutual guidance. We are fortunate that the assistance of Government has enabled the work to be started so much earlier than it might otherwise have been, and that we have the active interest of the Minister of Works, to whose Department the inception and effective carrying on of the scheme owes so much. We are also fortunate in having effective collaboration with the Institutions and Departments in Scotland.

The whole conception of the work is definitely in the interests of the public and of the nation, who cannot but benefit from improved building and constructional technique, and its development on independent scientific lines untrammelled by problems of departmental policy is highly desirable.

(Dr. Woods, in thanking the members for their vote of thanks, reiterated the usefulness of queries by architects and, if anyone has any constructive criticisms or suggestions to make and would care to forward them to the Chairman, H. Norman Haines, Brown Roofs, Copsum Lane, Esher, they will be forwarded to Dr. Woods.)

DIA

Joseph Emberton

March 7 at the County Hall, S.E.1. Lecture in the series *Design in Daily Life*, organized by the Design and Industries Association on RECONSTRUCTION OF OUR HOMES, by Joseph Emberton, F.R.I.B.A. Chairman: N. Hartland Thomas, F.R.I.B.A.

J. Emberton: I hope that my address will help you to understand the problem which is facing the building industry in providing the homes which are required and to appreciate the measures which are being taken to solve it. The problem is so immense that it obviously cannot be solved by traditional building methods, by which it takes a man about a year to produce a house.

The Government is doing all it can to train bricklayers, plasterers and the other tradesmen who are necessary for the construction of the type of buildings that we have known for centuries, but this will take some time and the problem is very urgent. I understand that, even when all building trades craftsmen have returned from the Services, there will not be enough craftsmen even to repair war damage and deal with the maintenance of existing buildings which has accrued during the last six years.

Before the war a good bricklayer laid 1,000 bricks a day, whereas the average now is between 300 and 400. Output per man has fallen tremendously since the war, not only in the building industry but in coal mining, iron founding and other industries where hard manual labour is involved. It seems to me that it is in the nature of things that in present-day circumstances, where so many people have experienced the pleasanter working conditions in factories, hard manual labour in such unsatisfactory conditions as prevail in a coal mine or on a building site in bad weather should become less popular. I believe that education, which is necessary if democracy is to succeed, will make men less inclined to undertake hard manual toil. It is in the nature of man to try to improve on the methods of his forefathers, and with education he will find a way of succeeding. I think it is now recognised that the only way to get the coal we require is to mechanise the mines, and, in my opinion, mechanisation is the only answer to the building problem.

I had a very interesting experience a short time ago when I went to the cinema. I saw, quite by coincidence, two films which created an extraordinary impression on me. One of the films was called "The C.B.'s," and it showed the American Construction Battalions following behind the Armies in the Far East. One saw a lot of hefty fellows, happy, vigorous and healthy-looking, at work with diggers, bulldozers and other kinds of immense machines, whereby a man can see considerable results from his efforts. In the next film one of our Construction Battalions was shown marching to work, the men having spades and shovels on their shoulders and looking very uninterested and dejected. It seems to me that the idea that has been prevalent for so long, that we are losing power and craftsmanship by the introduction of machinery, is an entire misconception. The machine is a power in a man's hand.

Traditional building will be helped when the brickfields are mechanised to a much greater extent than they are at the moment and by the prefabrication of interior fittings and plumbing. By the utilisation of automatic machinery under factory conditions for the employment of labour in the manufacture of building parts, I believe that the man hours required for the construction of a house can be reduced to one-fifth the time required for the construction of a traditional type of house, and I do not doubt that this can be done without decreasing efficiency, comfort or appearance; in fact, higher standards should be achieved.

Whilst an automatic machine can produce many of the same articles per minute, the articles must be precisely the same, so the architect's problem in designing a building for such form of manufacture is to design it so that it can be constructed by fitting together a number of parts which, if not all the same, conform to a minimum number of patterns. With the object of minimising labour on the site, it is desirable that the units of which the building is constructed should be as large as possible, consistent with being convenient for transport and handling. Another point to be borne in mind when designing the units is to design them so that they can be put together in different ways, in order to produce houses to suit varying requirements with regard to accommodation and aspect and to give variety to street frontages.

It may be thought that such form of prefabrication will result in monotony, but I do not think the monotony will be any worse than before; in fact, I do not think it will be so bad. In the past, such variations as have been made in street frontages on housing estates have been nothing more or less than the idiosyncracies of individual architects or speculative builders, and they do not really add anything to the people's lives. Some monotony is obviously inevitable if people will insist on living in semi-detached houses at eight or twelve to the acre.

Mass production will result in the simplification of building forms, as has been the case in connection with the motor-car body. In the first instance, the motor-car was an imitation horse-drawn carriage without shafts. When it got faster, unnecessary bits were eliminated, and it became more streamlined. Now, when the whole body is made by one or two operations of a large press, separate mudguards, lamp-brackets and other loose bits have become parts of the main pressing. The motor-car is now simpler to clean and I believe most people think it is better to look at. It is—or was before the purchase tax was imposed—much cheaper. I expect the same form of development to take place in connection with building.

Prefabrication will start by imitating (at some loss of efficiency and at extra cost) traditional brick building, but, as prefabrication develops, houses will gradually take on a new appearance, just as the motor-car

did. If people will judge their homes by their efficiency rather than from the point of view of sentimental prejudice, architecture will make progress and people will escape much unnecessary drudgery and lead brighter lives.

Whilst I believe that mechanised production can do as much for house building as it has done for other industries, it has not yet produced more satisfactory houses at less cost, but it can produce them more quickly and employ labour under more favourable conditions.

Traditional building, which has served us for many centuries, is almost foolproof, and if a good builder is employed little trouble need be feared. On the other hand, prefabricated building produces many new problems. An 11-inch hollow brick wall, which usually forms the enclosure of traditional type house, keeps the water out, is a fairly good insulator against both temperature and sound and is fire-resistant. Sheet metal will keep out the water, but it is not good as an insulator against temperature or sound and it requires protection against corrosion. Cork, fibre board and cellular concrete are good insulators against temperature but they will not keep out the weather. Thereafter the external walls of most prefabricated buildings are of a composite nature, and a scientist is required to determine their composition.

The occupation of a semi-detached cottage by a married woman without a servant represents a job for life. In a block of flats where it would be so easy to arrange communal services such as cleaning, she would be as free as her husband to choose the type of work she prefers to do. Alternatively, she would have more time to bring up a family.

If flats were designed in a manner appropriate for mass production by the utilisation of automatic machinery, they could be built as cheap as, if not cheaper than, the same accommodation in the form of semi-detached houses and the communal amenities such as lifts, central heating, laundry, creche, etc., could be provided for the money which would be saved by the omission of a considerable amount of site work in the formation of roads and services underneath, which would no longer be necessary. There would also be considerable saving to the Local Authority as the central heating would consume rubbish which would otherwise have to be collected and carted away. The provision of heat and hot water from a central source would save a lot of coal and thus help to solve an urgent problem.

The kind of facing adopted for the new type of building will be largely determined by making it appropriate for its situation. In the country thin concrete slabs with exposed aggregate which is available in many varieties and colours backed with proper insulating material such as aerated concrete, cork or fibre board can produce very pleasant results. A building I erected in Blackpool before the war faced with such slabs looks as clean and white now as the day it was put up.

For industrial towns a material which is attracting me at the moment is a plastic which can be sprayed on and cured by a heat process. Very severe tests to which the material has been subjected indicates that it will last for a very considerable period without maintenance. It can be put on a thin metal such as aluminium and can be produced in almost any colour or texture—and is washable.

ANNOUNCEMENT

The Limmer & Trinidad Lake Asphalt Co. Ltd. have removed their Head Offices from 19, Grosvenor Place, London, S.W.1, to their pre-war address, Steel House, Tothill Street, Westminster, S.W.1.

AnD WEDGE METHOD

Patent No. 519406

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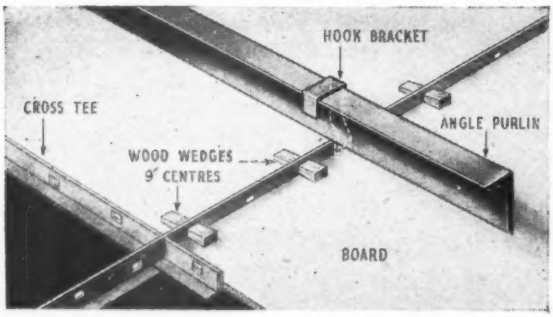
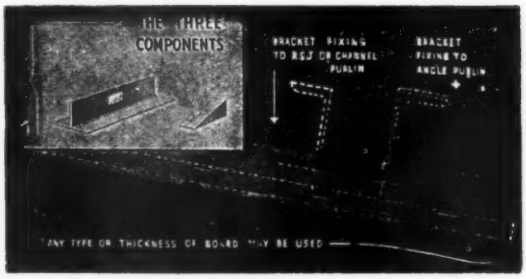
Escalator Tunnel of St. John's Wood Underground Station. Architect: S. A. Heaps.





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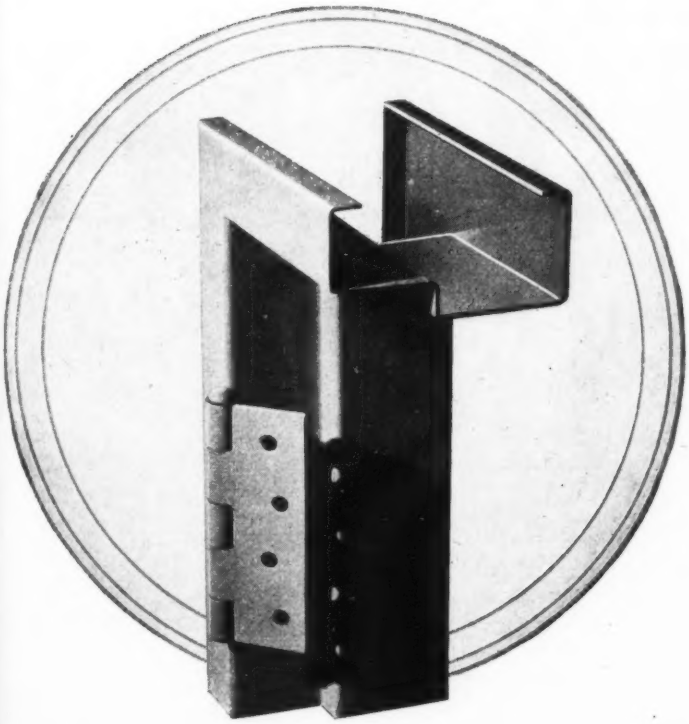

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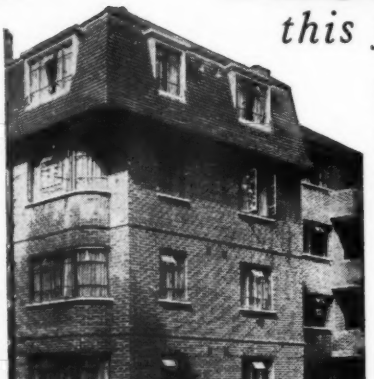

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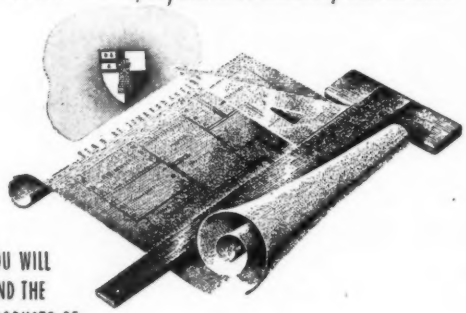

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CLASSIFIED ADVERTISEMENTS

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, 10s.; each additional line, 1s. 6d.

THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. ADDRESS: 75, EATON PLACE, LONDON, S.W.1. TEL.: SLOANE 5615. 991

BOROUGH OF LUTON.

BOROUGH ENGINEER'S DEPARTMENT—APPOINTMENT OF TECHNICAL STAFF.

Applications are invited for the following appointments:—

(*a*) SENIOR ARCHITECTURAL ASSISTANT. Salary on one or other of the following grades: £460—£15—£15—£20—£510 per annum; £535—£20—£20—£25—£600 per annum. The commencing salary to be commensurate with the qualifications and experience of the successful candidate.

(*b*) TWO SENIOR ENGINEERING ASSISTANTS. Salaries £460—£15—£15—£20—£510 per annum.

(*c*) BUILDING INSPECTOR. Salary £310—£15—£355 per annum.

(*d*) CLERKS OF WORKS on various Council housing estate contracts. Salaries according to capabilities and experience.

Appointments (*a*) and (*b*) are to the permanent staff, and appointments (*c*) and (*d*) are temporary in the first instance. A temporary cost-of-living bonus of £59 16s. per annum will be payable in all cases, and all appointments will be subject to the provisions of the Local Government Superannuation Act, 1937.

Applicants for appointments (*a*) must be A.R.I.B.A., and have had extensive experience in the design and construction of public buildings and municipal houses, and in particular have had recent experience in the design and development of housing schemes.

Applicants for appointments (*b*) should be A.M.Inst.C.E. or A.M.Inst.M. & Cy. E., and have had considerable experience of road and sewer works. In one of the two appointments preference will be given to those who have been responsible for the design and checking of structural steelworks and reinforced concrete works.

Applicants for appointment (*c*) must have had experience in the control of building works and administration of bye-laws.

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, Town Hall, Luton, not later than Saturday, 6th April, 1946. Canvassing will be a disqualification.

W. H. ROBINSON,
Town Clerk.

Town Hall, Luton.
12th March, 1946. 877

Amended Advertisement.

COUNTY BOROUGH OF EAST HAM.

APPOINTMENT OF TEMPORARY TOWN PLANNING ASSISTANT.

Applications are invited from qualified persons for the temporary appointment of Town Planning Assistant in the Borough Engineer and Surveyor's Department.

Candidates must be competent to undertake town planning work in all aspects of post-war redevelopment. Preference will be given to Associate Members of the Town Planning Institute or holders of an equivalent qualification.

The salary will be £600 per annum, rising by annual increments of £25 to a maximum of £700 per annum, plus war bonus, at present £59 16s. per annum, but the commencing salary may be at an incremental stage up to the maximum, according to the qualifications and experience of the person appointed.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, to the Council's conditions of service for temporary staff in force from time to time, and the successful candidate will be required to pass a medical examination.

Application forms are obtainable from the Town Clerk's office, and must be delivered to the undersigned, together with copies of three recent testimonials, not later than 5th April 1946.

Canvassing in any form will be a disqualification.

H. A. EDWARDS,
Town Clerk.

Town Hall, East Ham, E.6.
7th March, 1946. 862

COUNTY BOROUGH OF WALLASEY.

APPOINTMENT OF DEPUTY BOROUGH ARCHITECT.

Applications are invited from persons under 45 years of age, by the 5th April, 1946, for the appointment of Deputy Borough Architect. Salary £700 per annum, rising by two annual increments of £50 to £800 per annum, plus war bonus.

Applicants preferably should be Fellows or Associates of the Royal Institution of British Architects, and have had a wide experience of municipal work of all kinds. A form of application and further particulars will be sent on receipt of a stamped and addressed foolscap envelope.

EMRYS EVANS,
Town Clerk.

Town Hall, Wallasey.
11th March, 1946. 883

BERKSHIRE COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

Applications from qualified persons are invited for the following appointment on the permanent staff of the County Architect:—

QUANTITY SURVEYOR, at a salary on a scale at present £330—£15—£375, according to age and experience, plus the appropriate cost-of-living bonus, amounting to £59 16s. The salary scale will be adjusted if the National Joint Councils Scheme of Conditions of Service are adopted by the County Council.

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

Applicants should have considerable experience in the preparation of bills of quantities, specifications and accounts. Preference will be given to the Members of the Chartered Surveyors' Institute.

The possession of a car would be an advantage, and a motor car allowance would be paid in accordance with the appropriate County Council scale

Application forms are available from the County Architect, Shire Hall, Reading, on receipt of a stamped addressed envelope, which must be returned on or before Thursday, 4th April, 1946.

H. J. C. NEOBARD,
Clerk to the Council.

Shire Hall, Reading, Berks. 878

COUNTY BOROUGH OF HALIFAX.

ASSISTANT ARCHITECTS.

Applications are invited for the appointment of Two Assistant Architects, each at a salary of £350 per annum, plus war bonus, at present £59 16s.

Applicants must be fully trained Architects and good draughtsmen, experienced in the preparation of plans, working drawings, details and specifications, and be capable of preparing estimates, also surveying and levelling. Preference will be given to candidates who have had experience of housing work and the preparation of bills of quantities.

The appointments will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Act, 1937, and to the General Conditions of Service adopted by the Corporation. The successful candidates will be required to pass a medical examination.

Applications, stating age, present salary and detailed experience, accompanied by three recent testimonials, and endorsed "Assistant Architect," should be sent to the undersigned not later than first post Tuesday, 2nd April, 1946.

W. USHER,
Town Clerk.

Town Hall, Halifax.
13th March, 1946. 892

METROPOLITAN BOROUGH OF LEWISHAM.

APPOINTMENT OF TEMPORARY ARCHITECTURAL ASSISTANTS (TWO) AND TEMPORARY SURVEYING ASSISTANT (ONE).

Applications for the above appointments are invited from Architects, with experience in the design of municipal flats and houses, and the preparation of specifications. Applicants for the post of Temporary Surveying Assistant should have experience in surveying, levelling, and the preparation of plans for housing schemes, and preference will be given to applicants holding a recognised qualification such as P.A.S.I.

The salaries to be paid will be between £400 and £450, according to qualifications and experience, plus cost-of-living bonus (at present £59 16s.).

The appointments will be terminable by one month's notice on either side.

A Borough Architect's Department is being set up to which the persons appointed will be transferred, but meanwhile applications, stating age, present appointment, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to me at once.

JOHN CARR, B.Sc.(Eng.), M.Inst.C.E.,
Borough Engineer.

Town Hall, Metropolitan Borough of Lewisham, Catford, S.E.6. 909

CITY OF CANTERBURY.

ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of a temporary Architectural Assistant, in the City Architect's Department, at a salary of £310 by £15 to £355 per annum, plus cost-of-living bonus, at present 23s. per week.

Preference will be given to candidates who are A.R.I.B.A.

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

Applications, endorsed "Architectural Assistant," giving age, full particulars of experience and qualifications, and accompanied by not more than three copies of recent testimonials, should be received by the City Architect not later than Friday, the 12th April, 1946.

J. BOYLE,
Town Clerk.

Municipal Buildings, Canterbury. 897

MIDDLESBROUGH EDUCATION COMMITTEE.

APPOINTMENT OF ARCHITECTURAL ASSISTANT AND CLERK OF WORKS.

Applications are invited from men with suitable experience for the following appointments:—

(*a*) Architectural Assistant, at a salary of £375 per annum, rising by annual increments of £15 to a maximum of £420, plus cost-of-living bonus, which at the present time is £60 per annum.

Applicants should be Associates of the Royal Institute of British Architects, and have had experience of the preparation of sketch plans, working drawings, and specifications of modern buildings. Experience in educational building work will be an advantage.

(*b*) Assistant Clerk of Works, at salary of £315 per annum, rising by annual increments of £15 to a maximum of £360, plus cost-of-living bonus, which at the present time is £60 per annum.

Applicants should have a thorough knowledge of the building trade, and experience in the maintenance of buildings.

The appointments will be subject to the Local Government Superannuation Act, 1937.

Further particulars of the appointments may be obtained from the undersigned, to whom applications in writing should be sent not later than 6th April, 1946.

STANLEY HIRST,
Director of Education.

Education Offices, Woodlands Road, Middlesbrough.
15th March, 1946. 905

BOROUGH OF BARNES.

Applications are invited for the appointment of a TEMPORARY ARCHITECTURAL ASSISTANT, at a salary of £6 10s. per week, plus cost-of-living bonus of 23s. per week.

Candidates must have experience in the design and preparation of working drawings for flats, and in the planning and construction of various types of local authority buildings.

Applications, accompanied by copies of three recent testimonials, must be delivered to the Borough Engineer and Surveyor, 289, Sheen Road, Richmond, Surrey, not later than Tuesday, 9th April, 1946.

ARTHUR C. FOX,
Town Clerk.

7, Orchard Rise, Richmond, Surrey.
15th March, 1946. 908

BOROUGH OF KING'S LYNN.

CHIEF PLANNING AND ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Chief Planning and Architectural Assistant, in the Borough Engineer's Department, at a salary (in accordance with Grade IV of the New National Joint Council scales), commencing at £420 per annum, and rising by annual increments of £15 to £465 per annum, plus war bonus, at the present rate of £59 16s. per annum.

Candidates must be Associate Members of the Town Planning Institute, or hold an equivalent qualification, and also a recognised architectural qualification.

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

Candidates when making applications must disclose in writing whether to his knowledge he is related to any member of the Local Authority or to a holder of any senior office under the Authority.

Applications, endorsed "Chief Planning Assistant," stating age, qualifications, present and previous appointments and experience, accompanied by copies of two recent testimonials, must be delivered to the Borough Engineer, Town Hall, King's Lynn, not later than 9th April, 1946.

Canvassing, directly or indirectly, will disqualify.

FRANK G. REEVES,
Town Clerk.

Town Hall, King's Lynn.
15th March, 1946. 915

CITY OF NOTTINGHAM.

CITY ENGINEER'S DEPARTMENT.

Applications are invited for appointment as a SENIOR ARCHITECTURAL ASSISTANT. Applicants should have experience of schools, hospitals, and the works normally dealt with under a local authority, other than housing.

The appointment is subject to the Local Government Superannuation Act, 1937, and the salary will be £450 per annum, plus cost-of-living bonus, at present £59 16s. per annum. Preference will be given to an Associate of the R.I.B.A.

Applications are to be made on the form to be obtained from Mr. R. M. Finch, O.B.E., M.Inst.C.E., City Engineer and Surveyor, Guildhall, Nottingham, and are to be returned to him not later than Wednesday, 10th April, 1946.

J. E. RICHARDS,
Town Clerk.

The Guildhall, Nottingham.
14th March, 1946. 907

COUNTY BOROUGH OF DUDLEY.

BOROUGH ENGINEER'S DEPARTMENT.

ARCHITECTURAL ASSISTANTS.

Applications are invited for the following permanent appointments, which are subject to the Local Government Superannuation Act, 1937.

(*a*) Architectural Assistant, Grade E. Salary £360, plus £59 16s. cost-of-living bonus, rising to £405, plus bonus. Qualifications: A.R.I.B.A. or equivalent.

(*b*) Junior Architectural Assistant, Grade A. Salary £192 10s., plus £59 16s. cost-of-living bonus, rising to £217 10s., plus bonus.

Particulars and forms of application may be obtained from Mr. F. H. Gibbons, O.B.E., Borough Engineer, The Council House, Dudley, to whom they should be returned not later than Monday, the 8th April, 1946.

GEO. C. V. CANT,
Town Clerk.

The Council House, Dudley.
14th March, 1946. 926

CITY AND ROYAL BURGH OF EDINBURGH GAS DEPARTMENT.

APPOINTMENT OF TECHNICAL ASSISTANT.

Applications are invited from Architectural Assistants to fill the above post. Applicants should preferably be under 30 years of age, and have a sound knowledge of building construction and be able to develop isometric projections, etc., from basic dimensions. Experience of house conversion schemes would be an advantage.

This post offers scope for advancement in a specialist field of development and design.

Commencing salary £388 per annum, including war bonus. The appointment is subject to the terms of the Corporation's Superannuation Scheme.

Applications, stating full details of training, experience and qualifications, should be addressed to the Engineer and Manager, 15, Calton Hill, Edinburgh, 1. 921

METROPOLITAN BOROUGH OF BETHNAL GREEN.

TWO ARCHITECTURAL ASSISTANTS (Temporary Staff), Bethnal Green Metropolitan Borough Council, Borough Engineer's and Surveyor's Department, for work in connection with post-war housing.

Candidates must have had wide experience in the preparation of designs, working drawings, specifications, and estimates. Preference will be given to Associate Members of the R.I.B.A., fully conversant with the principal Building Acts and Regulations.

Salary: 1st Architectural Assistant, £555, rising to £620 per annum; 2nd Architectural Assistant, £480, rising to £530 per annum; both plus cost-of-living bonus (at present 23s. per week).

Applications in own handwriting, stating age, qualifications and experience, with copies of three testimonials, endorsed "First Architectural Asistant" or "Second Architectural Assistant," as the case may be, must reach the Borough Engineer and Surveyor, Town Hall, Bethnal Green, E.2, before noon on Thursday, the 4th April, 1946. 919

ESSEX EDUCATION COMMITTEE.

SOUTH-WEST ESSEX TECHNICAL COLLEGE AND SCHOOL OF ART.

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

Holders of the degree or diploma of a recognised School of Architecture preferred.

Salary; Burnham scale (London allowance), with increments for professional experience and time STUDIO MASTER and LECTURER in approved training and graduation.

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

B. E. LAWRENCE,
Chief Education Officer.

County Offices, Chelmsford.
18th March, 1946. 917

COUNTY OF DEVON.

Applications are invited for the position of ASSISTANT ARCHITECT, at a commencing salary of £700, rising by three annual increments of £50 to a maximum of £850, plus cost-of-living bonus, at present £59 16s. per annum.

Candidates should have had considerable experience in the design and supervision of public buildings, and should possess a sound knowledge of the organisation and administration of a large architectural department.

Applicants in H.M. Forces who are serving abroad are requested to cable the date of the despatch of their applications.

Applications, stating age, qualifications, and experience, accompanied by not more than three recent testimonials, should be sent to the County Architect, 97, Heavitree Road, Exeter, not later than Friday, the 12th April, 1946.

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

A. J. WITHYCOMBE,
Clerk of the County Council.

The Castle, Exeter.
18th March, 1946. 910

EAST GLAMORGAN JOINT PLANNING COMMITTEE.

Applications are invited for the appointment of a Grade 1 PLANNING ASSISTANT, at a salary on the scale £300 × £20 to £400 per annum, plus war bonus in accordance with the Whitley Scale. The commencing salary will be determined by the experience and qualifications of the successful candidate.

Applicants must possess recognised planning, architectural, engineering or surveying qualifications, and preference will be given to candidates with experience in the preparation of planning schemes, estate development layouts, and perspective drawing. The appointment will be superannuable, and the successful candidate will be required to pass a medical examination.

Applications must state age, qualifications, and experience, and be delivered, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, to the undersigned not later than the first post on the 12th April, 1946.

(Sgd.) BERNARD M. MURPHY,
Clerk of the Committee.

Town Hall, Mountain Ash, Glam.
19th March, 1946. 925

DERBYSHIRE COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of CHIEF ASSISTANT ARCHITECT, at a salary of £625 per annum, rising by annual increments of £25 to £700 per annum, plus cost-of-living bonus, at present £59 16s. per annum.

Applicants must be fully qualified and hold a degree or diploma in architecture obtained at a recognised school of architecture.

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

The appointment will be terminable by one month's notice on either side.

Applications, stating age, present salary and position, qualifications and previous experience, accompanied by copies of three recent testimonials, should reach the undersigned not later than 12th April, 1946, in an envelope endorsed "Chief Assistant Architect."

F. HAMER CROSSLEY,
County Architect.

County Offices, Derby.
28th March, 1946. 927

Partnerships

Six lines or under, 10s.; each additional line, 1s. 6d.

ASSOCIATE, A.A.Dip. (age 33), recently released R.A.F., wishes to obtain active Partnership in established London firm; own connection and capital available. Box 898.

Architectural Appointments Vacant

Four lines or under, 5s.; each additional line, 1s. 6d.

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

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

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

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

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

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

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

ARCHITECTURAL ASSISTANT required for Industrial, Housing, and General Work; able to prepare sketch plans, working drawings and surveys, with knowledge of quantities. Write, stating salary and when available, to Alan Sunderland, Architect and Surveyor, Manor Buildings, Bradford, or 6, Lord Street, Keighley, Yorks. 888

ARCHITECTURAL DRAUGHTSMAN required in Drawing Office of important industrial Company in Maidstone district; position offers good prospects for suitable applicant. Write, stating age, experience, and salary required, to Box 872.

CHIEF ARCHITECTURAL ASSISTANT required in W. Riding, Yorks office; must be fully experienced in design, construction, supervision of works, and have knowledge of quantities; permanent position; salary £400-£500, according to experience and qualifications. Write with all details to Box 889.

QUANTITY SURVEYORS (Senior and Junior), experienced in preparation of estimates, contract documents and bills, also measurement of work, required by Main Line Railway Co.; engagement on temporary basis at from £7 7s. to £10 10s. per week, plus war advance (at present 28s. per week), according to qualifications and experience. Applications, stating age, experience, etc., with copies of recent testimonials, to Box 879.

QUALIFIED ARCHITECTURAL ASSISTANT required by East Midlands brewery; experience of licensed premises design, alterations, maintenance and general drawing office routine essential; must be neat and quick draughtsman; salary £450 to £550 per annum, according to experience; please state if married, age, qualifications, and when available, and enclose copies of testimonials. Box 874.

ASSISTANT ARCHITECTS (Senior and Junior), experienced in the design of modern buildings, required by Main Line Railway Co.; engagement on temporary basis at from £7 7s. to £10 10s. per week, plus war advance (at present 28s. per week), according to qualifications and experience. Applications, stating age, experience, etc., with copies of recent testimonials, to Box 880.

WANTED, for a Railway Civil Engineer's Office in Edinburgh, Temporary Architectural Assistants, capable of preparing working drawings from rough sketches, estimating and supervising works in progress. State age, qualifications and salary expected to Box 881.

ARCHITECTURAL ASSISTANT wanted in about 6 weeks (age 24 to 30), for a country town 100 miles from London, with a view to Partnership (varied practice); good and quick draughtsman and tracer; knowledge of quantities an advantage; with full particulars. Box 902.

ARCHITECT'S ASSISTANT wanted; capable man, for good general practice. Qualifications, references, and terms, to Fred Howorth, L.R.I.B.A., 10, Theatre Street, Preston. 901

JUNIOR ARCHITECTURAL DRAUGHTSMEN (two) required by fairly large industrial undertaking in East Anglia. Reply, stating age, qualifications, experience, and salary required, to Box 906.

SURVEYOR'S ASSISTANT required (age 25-30); capable of cubing buildings for fire insurance purposes and general routine duties; salary, £5 5s. weekly. Junior Assistant required for Surveyor's office; salary, £2 weekly. Write Box 72, c/o Mather & Crowther, Ltd., Brettenham House, Lancaster Place, London, W.C.2. 911

URGENTLY required experienced Architectural Assistant; general practice; busy office; send references and state salary required. Clifford Smith & Newenham, 75, O'Connell Street, Limerick. 912

ARCHITECT, engaged on housing, reconditioning, factories, etc., requires capable experienced Assistant; able to prepare working drawings, details, from sketch plans, make surveys, check accounts; knowledge of quantities an advantage; S.W. England. Apply, stating age, experience, and salary required, Box 913.

REQUIRED, immediately, capable Senior Assistant, for country office; Cotswold district; one able to take responsibility, supervise, etc.; some knowledge and experience of housing essential; state salary required. Box 920.

ARCHITECT'S ASSISTANTS required immediately, Newcastle-upon-Tyne; trained and experienced for commercial, shop, and factory work, surveys, sketch plans, working drawings, etc. Apply, stating experience, salary, etc., to Box 928.

SENIOR ARCHITECTURAL ASSISTANT required in small City office; able to take charge of office and work on own initiative. 'Phone Monarch 2850, or write Andrews & Winton-Lewis, A.R.I.B.A., 12, City Road, London, E.C.1. 923

CITY Firm of Surveyors require Senior Assistant in their Architects' Department; capable of taking charge under supervision of principal. Write, stating age, experience, and salary required, to Box A551, c/o Streets, 110, Old Broad Street, E.C.2. 924

NORTH WALES Firm of Architects, with branch offices, requires keen competent draughtsman to execute working and detail drawings; future prospects good for suitable candidate. Box 930.

QUALIFIED Chartered Quantity Surveyor required to manage department in busy East Anglian Architect's Office; salary £520 per annum, rising according to ability. Box 932.

DRAUGHTSMAN as Assistant to Architectural Department; age about 25; experienced in building construction and control of building operatives. Apply Austin Motor Co., Ltd., Birmingham. 931

Architectural Appointments Wanted

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

ARCHITECTURAL DRAUGHTSMAN (35), 10 years' experience of large variety of work, requires permanent or temporary position immediately; good, quick draughtsman, prepare all necessary drawings, surveys, supervision of building work; moderate salary required. Box 327.

A.R.I.B.A., Dip.Arch. (Public School) (25) desires London area post; general experience, measured surveys, conscientious worker, good draughtsmanship; special consideration given for an opportunity where the results of study of period and ecclesiastical architecture would give an advantage. Box 331.

ARCHITECT and PLANNER, A.R.I.B.A., A.M.T.P.I., with 18 years' general experience, including housing and layouts, wishes permanent post with a Local Authority or private firm in the West of Scotland area. Box 332.

A.R.I.B.A. (Dip.Arch), 24, with good general office experience, first-class draughtsmanship, accurate measured surveys, town planning; London district. Box 333.

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