THE ARCHITECTS' JOURNAL

standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur.

No. 2519] [VOL. 97

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★ The war has both multiplied the number of Official Departments and encouraged Societies and Committees of all kinds to become more vocal. The result is a growing output of official and group propaganda. A glossary of abbreviations is now provided below, together with the full address and telephone number of the organizations concerned. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association. 34/6, Bedford Square, W.C.1. Museum 0974.
ABCA	Army Bureau of Current Affairs. Curzon House, Curzon Street, W.1. Mayfair 9400 (Extension 461).
ABT	Association of Building Technicians. 113, High Holborn, W.C.1. Holborn 1024-5.
APRR	Association for Planning and Regional Reconstruction. 32, Gordon Square, W.C.1. Euston 2158-9.
ARCUK	Architects' Registration Council. 68, Portland Place, W.1. Welbeck 9738.
ASB	Architectural Science Board of the Royal Institute of British Architects, 66, Portland Place, W.1. Welbeck 6927.
BC	Building Centre. 23, Maddox Street, W.1. Mayfair 2128.
BCGA	British Commercial Gas Assn. 1, Grosvenor Place, S.W.1. Sloane 4554.
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2. Temple Bar 9434.
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1. Euston 5385.
BINC	Building Industries National Council. 110, Bickenhall Mansions, W.1. Welbeck 3335.
BOE	Board of Education. Alexandra House, Kingsway, W.C.2. Temple Bar 8020.
BOT	Board of Trade. Millbank, S.W.1. Whitehall 5140.
BRS	Building Research Station. Bucknalls Lane, Watford. Garston 2246.
BSA	British Steelwork Association. 11, Tothill Street, S.W.1. Whitehall 5073.
BSI	British Standards Institution. 28, Victoria Street, S.W.1. Abbey 3333.
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1. Sloane 4280.
CSI	Chartered Surveyors' Institution. 12, Great George Street, S.W.1. Whitehall 5322.
DIA	Design and Industries Association. Central Institute of Art and Design, National Gallery, W.C.2. Whitehall 7618.
DOT	Department of Overseas Trade. Dolphin Square, S.W.1. Victoria 4477.
EJMA	English Joinery Manufacturers Association (Incorporated), Goring Hotel, Grosvenor Gardens, S.W.1. Victoria 9787-88.
FGLMB	Federation of Greater London Master Builders. 23, Compton Terrace, Upper Street, N.1. Canonbury 2041.
GG	Georgian Group. 55, Great Ormond Street, W.C.1. Holborn 2664.
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1. Whitehall 2881.
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1. Sloane 3158.
ICE	Institution of Civil Engineers. Great George Street, S.W.1. Whitehall 4577.
IEE	Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. Temple Bar 7676.
IHVE	Institution of Heating and Ventilating Engineers. 21, Tothill Street, S.W. 1. Whitehall 9609.
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1. Abbey 6172.
LIDC	Lead Industries Development Council. Rex House, King William Street, E.C.4. Mansion House 2855.
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1. Museum 3767.
MARS	Modern Architectural Research. 8, Clarges Street, W.1. Grosvenor 2652.
MOH	Ministry of Health. Whitehall, S.W.1. Whitehall 4300.
MOI	Ministry of Information. Malet Street, W.C.1. Euston 4321.
MOLNS	Ministry of Labour and National Service. St. James' Square, S.W.1. Whitehall 6200.
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.2. Gerrard 6933.
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1. Abbey 7711.
MOTCP	Ministry of Town and Country Planning. 32-33, St. James's Square, S.W.1.
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611.
NBR	National Buildings Record. 66, Portland Place, W.1. Welbeck 1881. All Souls' College, Oxford. Oxford 48809.
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. Langham 4041.
NFBTO	National Federation of Building Trades Operatives. 9, Rugby Chambers, Rugby Street, W.C.1. Holborn 2770.
NT	National Trust for Places of Historic Interest or Natural Beauty. 7, Buckingham Palace Gardens, S.W.1. Sloane 5808.
PWB	Post War Building, Directorate of. Ministry of Works, Lambeth Bridge House S.E.1. Reliance 7611.
RC	Reconstruction Committee RIBA. 66, Portland Place, W.1. Welbeck 6927.
RCA	Reinforced Concrete Association. 91, Petty France, S.W.1. Whitehall 9936.
RIAI	Royal Institute of Architects of Ireland. 8, Merrion Square, N. Dublin
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1. Welbeck 5721.
RS	Royal Society. Burlington House, Piccadilly, W.1. Regent 3335.
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2. Temple Bar 8274.
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646.
TCPA	Town and Country Planning Association. 13, Suffolk Street, S.W.1. Whitehall 2881.
TDA	Timber Development Association. 75, Cannon Street, E.C.4. City 6147.
TPI	Town Planning Institute. 11, Arundel Street, Strand, W.C.2. Temple Bar 4985.
ZDA	Zinc Development Association. 15, Turl Street, Oxford. Oxford 47988

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So there is still an Architect who does not specify "STANDARD"!

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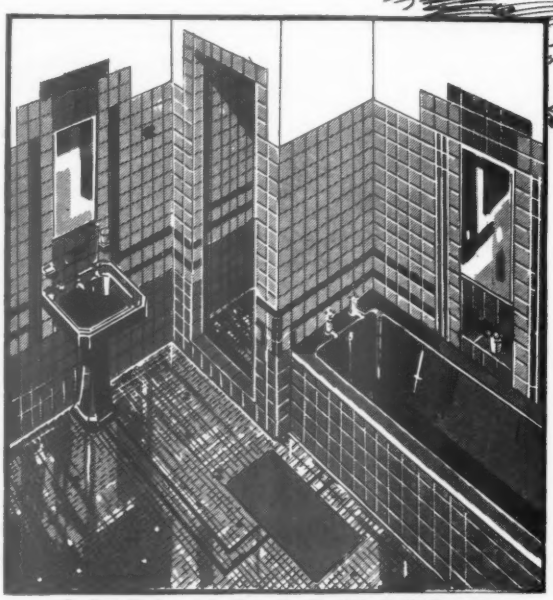

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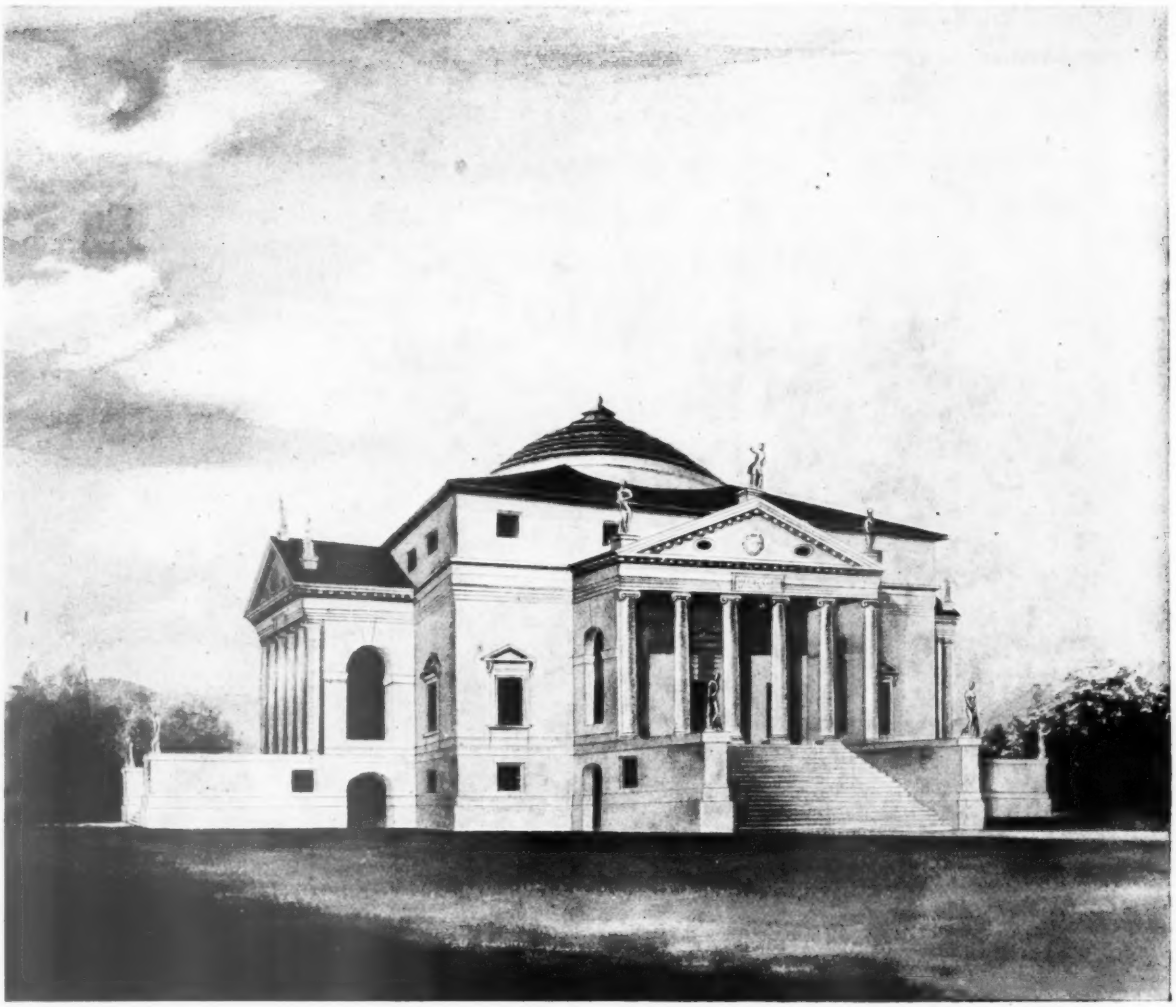

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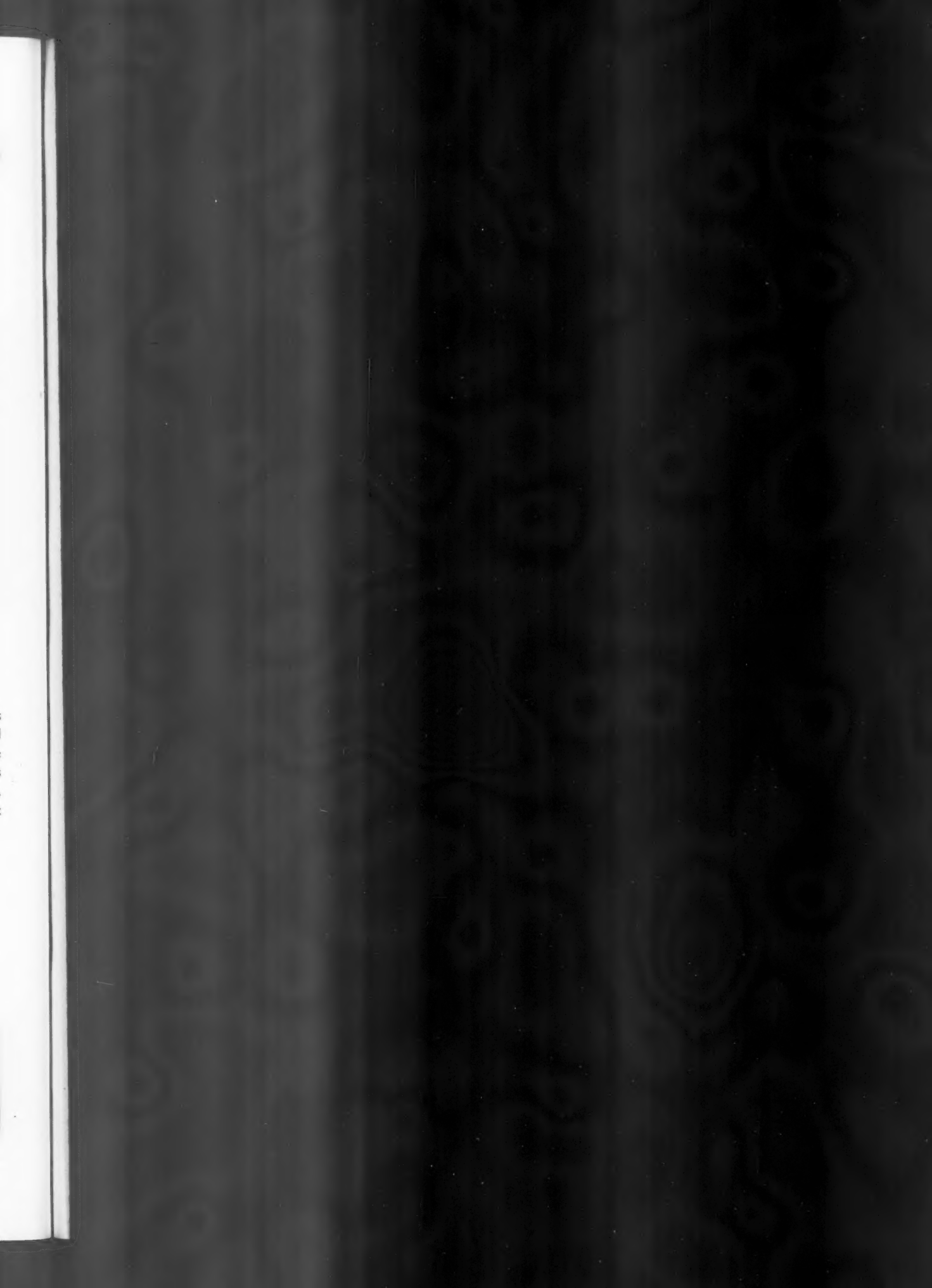
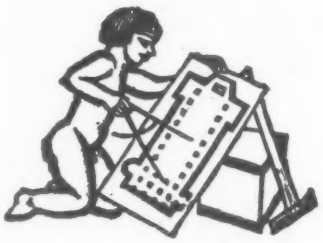


In common with every other periodical this JOURNAL *is rationed to a small part of its peacetime needs of paper. Thus a balance has to be struck between circulation and number of pages. We regret that unless a reader is a subscriber we cannot guarantee that he will get a copy of the* JOURNAL. *Newsagents now cannot supply the* JOURNAL *except to a "firm order." Subscription rates: by post in the U.K. and Canada, £1. 3s. 10d. per annum; abroad, £1. 8s. 6d. Special combined rate for* ARCHITECTS' JOURNAL *and* ARCHITECTURAL REVIEW *in the U.K. and Canada, £2. 6s.; abroad, £2. 10s. Single copies, 6d.; post free, 8d. Special numbers are included in subscription; single copies, 1s.; post free, 1s. 3d. Back numbers more than 12 months old (when available), double price. Volumes can be bound complete with index, in cloth cases, for 12s. 6d. each; carriage 1s. extra. Goods advertised in the* JOURNAL, *and made of raw materials now in short supply, are not necessarily available for export.*



DIARY FOR MAY

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

LONDON. *English Town Exhibition.* At St. Martin's School of Art, 109, Charing Cross Road. The exhibition is open free every day (except Sundays) 10 a.m. to 7 p.m. It comprises drawings, photographs and models illustrating the unbroken growth and development of the English town from the earliest to the present time. Twelve Societies have co-operated in the arrangements for the exhibition. MAY 6 to 8

Polish Architectural Exhibition. At RIBA. Weekdays, 11 a.m. to 6 p.m. (Sponsor, RIBA and Society of Architects of the Republic of Poland.) MAY 6—15

Professor A. E. Richardson. *Public Lecture.* At English Town Exhibition, St. Martin's School of Art, Charing Cross Road, W.C.2. (Sponsor, GG.) 3 p.m. MAY 8

Tom Harrison of Mass Observation. *Industrial Design and the Public.* Chairman: George Hicks, M.P. At Burlington House, Piccadilly. 1.30 p.m. (12.45 p.m. buffet lunch, 2/6.) MAY 11

ASB LECTURES

Dr. T. Bedford, Investigator to the Industrial Health Research Board of the Medical Research Council. *Heating and Ventilating: Analysis.* At RIBA. 2.15 p.m. MAY 8

A. C. Pallot of MOW. *Heating and Ventilating: Application.* At RIBA. 2.15 p.m. MAY 8

Dr. Charles White, MOH City of London. *Hygiene and Sanitation: Analysis.* At RIBA. 2.15 p.m. MAY 8

F. Barrow, of BRS. *Hygiene and Sanitation: Application.* At RIBA. 2.15 p.m. MAY 8

C. F. White, MOH, City of London. *Health Problems and Rebuilt London.* Chadwick Public Lecture. At Royal Society of Tropical Medicine and Hygiene. 26, Portland Place, W.1. 2.30 p.m. MAY 11.

Capt. M. J. C. Spratt, R.C.E. *Canadian Practice in Cement and Concrete.* At 75, Eaton Place, S.W.1. (Sponsor, IAAS). 6 p.m. MAY 12

Confederation of Management Associations. *46th "Oxford" Management Conference,* Waldorf Hotel, W.C.2 and St. Ermins Hotel, S.W.1. May 14, 15 and 16. Conference fee: £3 per delegate, inclusive of luncheon on Friday; buffet luncheon Saturday; tea on Friday and Saturday. Delegates to make own arrangements for hotel accommodation. May 14. 12.30 p.m. Luncheon, Waldorf Hotel. Address by Sir Stafford Cripps, Minister of Aircraft Production. 4.0 p.m. Tea. 4.30 p.m. Address by Samuel Courtauld, *Co-operation in Industry*—An Employer's Views. Waldorf Hotel. 8.0 p.m. Group Discussion Meetings. St. Ermins Hotel.

May 15. 10.0 a.m. Address by R. Coppock, General Secretary of the National Federation of Building Trades Operatives, *Management and Labour Relations of the Future.* Waldorf Hotel. 12.30 p.m. Buffet Lunch, Waldorf Hotel. 1.0 p.m. Address by Miss Anne Loughlin, Chairman of the General Council of the Trades Union Congress and General Organiser of the Tailors and Garment Workers Union, *The Responsibility of Management.* 4.0 p.m. Tea. 4.30 p.m. Address to be announced later, Waldorf Hotel. 8.0 p.m. Group Discussion Meetings, St. Ermins Hotel.

May 16. 10.0 a.m. Concluding Session, St. Ermins Hotel. Address by Dr. Stanley Walpole, Chairman and Managing Director, Masson Seeley & Co., Ltd., *Joint Consultation at all Levels.*

Rudolf Wittkower. *Palladie.* At Courtauld Institute of Art, 20, Portman Square, W.1 12.30 p.m. MAY 13

E. A. Pearce and F. W. Woolgar. *High Pressure Hot Water Heating.* At 21, Tothill Street, S.W.1. (Sponsor, IHVE) 6 p.m. MAY 19

Anthony Blunt. *Borromini.* At Courtauld Institute of Art, 20, Portman Square, W.1. 12.30 p.m. MAY 20

J. B. Priestley. *Urban Building After the War.* At AA. 6 p.m. MAY 25.

Miss Margaret Whinney. *John Webb, a forgotten link.* At Courtauld Institute of Art, 20, Portman Square, W.1. 12.30 p.m. MAY 27

ASB LECTURES

H. C. Weston, Investigator to the Industrial Health Research Board of the Medical Research Council. *Lighting: Analysis.* At RIBA. 2.15 p.m. MAY 15

P. V. Burnett. *Lighting: Application Natural Light.* At RIBA. 2.15 p.m. MAY 15

R. Ackerley. *Lighting: Application Artificial Light.* At RIBA. 2.15 p.m. MAY 15

MANCHESTER. R. Fitzmaurice, of the Department of Scientific and Industrial Research. *Materials and Construction for Post-War Building.* At the School of Architecture, Manchester School of Art. (Sponsor, Manchester School of Architecture). 3 p.m. MAY 11

A. Longworth. *The One Pipe System of Plumbing.* At the School of Architecture, Manchester School of Art. (Sponsor, Manchester School of Architecture). 3 p.m. MAY 18

NEWS

THURSDAY, MAY 6, 1943
No. 2519. VOL. 97

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

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

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

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

Mr. T. Roberts, the War Damage Commission's Regional Manager for Region No. 10 *(Manchester), has been APPOINTED DEPUTY DIRECTOR OF CLAIMS at the Headquarters of the Commission in London. He is succeeded in Manchester by Mr. J. L. Moffat.*

Before blitzed areas of the City of London are rebuilt, an attempt will be made to REGROUP ASSOCIATED BUSINESSES, reconstituting City market centres for furs, wools, textiles and so on near convenient brokers, bankers and insurance offices. The Reconstruction Advisory Council is asking business men to tell them the approximate area of their former offices, the number of pre-war employees and the number they are likely to need after the war. They are asked, also, to give details of loading or parking facilities that might be needed. The Council of 40 leaders of City interests will send its questionnaire to about 5,000 people, including many whose warehouses or offices have been destroyed.

from AN ARCHITECT'S *Commonplace Book*

STANDARDIZATION—THE LIBERATOR. [*From* Standards of Our Social Order, *an article written for the American Standards Association by P. G. Agnew*]. Standardization might be described as the authority, custom, or general consent of a rule to be followed. Folkways, taboos, moral codes, ceremonies, religious rituals, educational procedures, social and business customs, industrial practices and law itself, are all forms of standardization. Language is the most important example of standardization that man has brought about. . . . It is a misconception to believe that standardization means to stand still. To the industrialist, a sound standard represents the best way of doing a thing—at the moment. If to-morrow he finds a better way he will codify it in a new standard. Were it not for standards, there would be nothing to stand on to make a fresh advance. All one's energy would be used up in meeting the idiosyncrasies of the immediate moment. In the field of industry each piece of machinery would be an individual problem. Standardization is thus the liberator that relegates the problems that have already been solved to their proper place, namely, to the field of routine, and leaves the creative faculties free for the problems that are still unsolved.

The modernising of the existing buildings and the erection of a theological hall of residence after the war have been made possible by a £55,000 GIFT TO ST. DAVID'S COLLEGE, Lampeter, from an anonymous donor. Though it is no condition of the gift, the donor has expressed the wish that the college authorities shall endeavour to raise a similar sum for general endowment purposes, so that the college shall have a strong financial basis for the future. Steps are being taken to launch such an appeal. From its earliest days St. David's College has served as a centre of education for young men preparing for the ministry of the Church in Wales. The provision of a Hall of Residence will enable graduates who have completed their arts courses to enjoy the benefits of residence in a corporate community for the remaining two years of their training. The gift will also make feasible a new college chapel, students' common rooms and library.

Old students of Aberystwyth University College are to CLAIM £10,000 FROM LORD DAVIES as a contribution to the fund for the building of the new college. In 1935 he promised that amount if a similar sum were raised in 10 years. It was announced at the annual meeting of the Old Students' Association at Aberystwyth that £10,001 had been raised since 1934.

Mr. Phil Barnes, who has been the secretary both of the Peak and Lancashire branches of CPRE has joined in the CRITICISM OF LADYBOWER RESERVOIR, now nearing completion. Writing in *The Times* in reply to the Derwent Valley Water Board's comments on certain criticisms recently made by Sir William Rothenstein and others of some features of the new Reservoir (see A.J., April 29, page 227), he says the main criticism is not of the present appearance of the reservoir workings in their unfinished state, but the unsympathetic treatment of the roads, kerbs, and boundary fences of the new roads. The MOT Memorandum on the Lay-out and Construction of Roads, published in 1937, he writes, urged highway authorities to use light coloured materials for the surface of highways in the interests of visibility at night, to use local materials where available for kerbs, to supplement fencing by the planting of hedges, and, wherever possible, to preserve existing hedges as these materially contribute to the amenities of the countryside. At Ashopton the road surface is black macadam, the kerbs are concrete, and there are miles of open fences of concrete and wire, tubular rails, or spiked railings. No reference is made in the memorandum to the use of open fences to prevent the drifting of snow and, indeed, it is difficult to accept this as a reasonable excuse for so drastic a change from the pleasant, varied hedgerows which led from Ashopton towards the Snake or the grey drystone walls elsewhere on this road. For over six years before the war, Mr. Barnes says, I motored twice a week along the Snake and cannot remember one occasion when the road was blocked by drifts in the particular lengths affected by the new reservoir. By all means let us consider fitness for purpose in our road works, as in all other construction, but a wall or hedge has other important uses than to mark the boundary of a highway. It affords shelter to cattle and sheep and also some protection from bitter winds to cyclists or pedestrians. This particular road is not only a means of getting quickly and easily from Sheffield to Manchester. It is also one of the most beautiful motoring roads in England and is frequented by thousands solely because of its beauty.

Mr. E. E. Hoadley, chairman of BEDA, suggests a SIX-POINT POST-WAR ELECTRICITY PROGRAMME to benefit the consumer. In an interim statement on after-war policy he says: The association is now developing a programme for strengthening its organization to give the industry full assistance in increasing the efficiency of its service to the public in the period of rehabilitation following the war. As part of this programme the association is seeking for a director who will act as the ambassador of the industry in all matters of supply and utilization affecting 10,500,000 consumers. Directions in which the post-war consumer may expect improvements include: (1) Standardization of voltages, enabling consumers to use their apparatus anywhere; (2) standardization of forms of tariff so that people will understand what they are paying for; (3) easy facilities for hire-purchase of apparatus and maintenance of apparatus by the supply authorities; (4) development of the industrial off-peak load so that industrial consumers can have cheap supplies; (5) service by the industry's experts to help industrial consumers with their technical problems; and (6) increased facilities to the public for advice and guidance from its electricity authorities—a logical development of the successful war-time policy which the industry, working with the Government, has applied to the food and fuel saving campaigns.

The London Society, said Lord Esher, the President, at the society's annual meeting in London, is LIKE A CAT WAITING AT A MOUSE HOLE. He said: It is our duty to see that what the enemy has left of beauty within this ancient and renowned city is not improved out of existence, and to restrain the eager vision of a new Jerusalem neatly designed to replace the old London. The number of committees making plans for London is legion. Those who, like the RA, have been bold enough to state their intentions, have been fallen upon by the Phillistines who are out for the *status quo* before the blitz, and by the Left, whose brave new world requires a clean slate. The L.C.C. and the City Council have been more cautious and more cunning, working away like moles under the protection of their statutory rights, but they must emerge at some time and justify their solutions. Sir Gwilym Gibbon forecast an attempt to meet the enormous post-war demand for residential and industrial accommodation to an extent beyond that with which the building industry could cope, and said: I fear we are in for as big a mess as that after the last war. I hope that in our building programme we will not indulge in too much copying of the past. I hope that men of ability will have a chance to introduce a modern spirit of beauty and harmony.

Mr. Wm. McKinnell, Chairman of the Building Societies Association, speaking at the annual meeting of the South-Eastern Counties Association of Building Societies, said that building societies will be prepared to ADVANCE SUBSTANTIAL SUMS FOR BUILDING HOUSES for letting when house building is resumed. He said: The erection of houses for letting is likely to take place on a considerable scale in the years immediately following the war. We have accordingly informed the authorities that building societies will, in principle, be willing to assist considerably in the provision of mortgage facilities in respect of houses for letting.

Professor W. G. Holford

If he had done nothing else the name of William Holford would still bulk large in the architectural history of the war for his munition workers' hostels —over five million pounds worth of work executed with great rapidity and with the efficiency of a Kaiser record-breaking shipbuilding job. Thirty-six years of age, he was educated at the Diocesan College in Capetown and under Professor Reilly in the Liverpool School, where eventually he succeeded Patrick Abercrombie as Professor of Civic Design. With two other technicians he became adviser to Lord Reith in 1940, and since then has been one of the half-dozen key men in the planning set-up. But his most important work will be done behind the doors of MOTCP, where he is now Chief Research Officer. His address on planning research given to the Town Planning Institute on April 29 will be published in full in next week's issue of the JOURNAL.

In his report on the Civil Appropriation Accounts, 1941, published on April 28, Sir Gilbert Upcott, Comptroller and Auditor General, writes of a £1,000,000 FACTORY BUILT ON COMBUSTIBLE MATERIAL which caught fire underground. It was an agency factory and the requisitioned site consisted of made-up ground mainly of combustible waste material. The fire was discovered shortly after the start of production and, in spite of the steps taken by the managing firm, further fires broke out and settlement occurred in some of the buildings. Some six months later the Ministry of Aircraft Production assumed responsibility for combating the fire. They engaged expert assistance and initiated extensive remedial measures, says the report, "but in view of the subsidences which had occurred, partly as a result of the fires and partly on account of the unstable nature of the site, it became necessary to undertake a comprehensive scheme to extinguish the fire and secure the stability of the whole factory." By September last year, when the estimated value of the work so far completed was £440,000, the stability of the factory was reported to be reasonably assured, but it is understood that it is not yet possible to frame a final estimate of the expenditure that may ultimately be involved, although a bill for at least £656,000 is expected.

In the House of Commons, Mr. Bowles asked the President of the Board of Trade, whether he will state the reason for the EXTENSION OF THE LOCATION OF INDUSTRY ORDER to cover premises below 3,000 square feet in area. Mr. Dalton: Under the Location of Industry (Restriction) Order, 1941, the starting up of any form of production in premises of 3,000 square feet or over in area, or a change-over in the type of production carried on in such premises, was subject to the issue of a licence by BOT. With the progress of the war it became essential to cover all premises, whatever their size, so that there should be no waste anywhere of our resources, whether of space, raw material, or labour. Accordingly, following consultation with the Ministry of Production, an Order was made in October last abolishing the exemption of premises below 3,000 square feet in area and thus bringing within the Department's control all premises, whatever their area. The Order is administered in close consultation with the Regional Boards of the Ministry of Production. The Order also governs the use of premises for storage purposes.

Work has started on the DEMOLITION OF THE OLD PRINCESS THEATRE, Kennington, which was opened in 1898; the foundation stone was laid by Sir Henry Irving. The building overlooks the model houses erected by command of the Prince Consort at the 1851 Exhibition which were subsequently rebuilt in Kennington Park.

SAVING STEEL

ON another page of this issue an article is published on pre-stressed concrete. This development in the technique of the concrete industry is of importance not only because it eliminates the weakness of concrete, namely its tendency to cracking owing to its small tensile strength, which the cement industry has so far been unable to overcome, but also because it allows the use of wire of very high tensile strength as reinforcement and thus makes a very considerable saving of steel possible. This may amount to 70 to 80% of the weight of mild steel. In view of the present necessity of saving steel it would appear that insufficient attention has been paid to the exploitation of this method. No doubt its commercial application is limited to mass produced articles but there are many such articles in big demand. As an example the roof beams of huts 19 ft. and 24 ft. span may be mentioned of which many tens of thousands have been manufactured during the last year. The objection that pre-stressing needs a rather expensive equipment, which small firms cannot afford, and also more supervision than the traditional methods of making concrete beams, does not apply to a fair number of larger factories. Another important war time application are concrete sleepers for which there is an increasing demand. In this case the safe elimination of cracks may be of even greater importance than the saving of steel.

The fact that steel is a licensed material is evidence in itself that every effort is wanted to use steel as economically as possible. Since pre-stressing is restricted to special cases it should be remembered that much could be done by replacing mild steel with high tensile steel, produced by the work-hardening process. There are various simple methods of cold treatment of mild steel resulting in a "yield point" which is 50 to 70% higher than that of the untreated material. Such high tensile steel can be used as reinforcement of concrete for most purposes at working stresses 50% higher than mild steel, with the same, or an even greater, factor of safety. This means that three tons of mild steel can be replaced by two tons of high tensile steel in the great majority of cases. The labour required for giving two tons of mild steel the higher strength is a fraction of the labour which would be necessary to produce another ton of mild steel, not to speak of the saving in fuel. The importance of work hardened high tensile steel was recognised in Germany long before the war, and already in 1937 about 50% of the total steel consumption as concrete reinforcement amounting to approximately 1,000,000 tons was of high tensile quality.

In this country the use of high tensile steel was not very much supported before the war. The LCC By-Laws of 1938, which are accepted by many other authorities all over the country, make its use at higher working stresses dependent on a "waiver" in each particular case. In other words, a special application has to be made for every building, if

high tensile steel is to be adopted at working stresses higher than permissible for mild steel. This is naturally a deterrent owing to the delay, quite apart from the extra work imposed upon the designer. The justification for this procedure seems to be the lack of a British Standard Specification for work hardened high tensile steel, similar to BSS No. 785 for mild steel. It may be expected that such a Standard Specification will be issued in due course and this should be followed by a general introduction of permissible stresses for such materials, not only in the LCC By-Laws, but preferably in a National Code of Practice.

The control of steel should make the introduction of high tensile steel during the war easier than under normal circumstances, since the issue of building permits could include the obligation to use high tensile steel instead of mild steel whenever it is technically warranted. Such procedure would combine the national and the private interest: it would result in a saving of steel and in a reduction of the building cost.

The Architects' Journal
War Address: 45, The Avenue, Cheam, Surrey
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NOTES & TOPICS

THE NEW BILL

The new Town and Country (Interim Development) Bill which Mr. William Morrison has presented to the House makes difficult reading, but the following five points appear to constitute its basis:

(i) All land in England and Wales will be brought under planning control.

(ii) Local Authorities will be able to refuse the replacement of an existing building which might prejudice its plans.

(iii) Local Authorities will be able to permit development for a limited period.

(iv) The Minister will be able to require any application for permission for interim development to be referred to him for decision.

(v) The Minister will be empowered to constitute joint planning committees, even though none of the constituent authorities has asked him to do so.

*

The Bill provides that, three months after the commencement of the Act, all land, not already subject to a scheme in force or at some stage of preparation, shall be deemed to be subject to a resolution, duly passed by the local authority and approved by the Minister, for the preparation of a planning scheme. The Bill strengthens the position of local planning authorities in such a way as to prevent their schemes from being impaired or spoiled before they have had time to get them fully worked out. For example, it empowers them to refuse to allow the replacement of an existing building, and it gives them a power—specially valuable in the case of devastated areas, where temporary buildings may be urgently required on their old sites—to permit development for a limited period, and to secure its removal without additional compensation at the end of the period.

*

At the same time certain powers of control are given to the Minister over the grant of permissions by local planning authorities. In particular he can require any application for permission for interim development, or any class of such applications, to be referred to him for decision. This is necessary if he is to discharge the duty imposed upon him by the Minister of Town and Country Planning Act, 1943—to secure "consistency and continuity in the framing and execution of a national policy with respect to the use and development of land." Further the Bill empowers the Minister to constitute joint committees, even though none of the constituent authorities of the proposed committee have asked him to do so. This means that planning can be extended over wide areas.

*

Provision has been made for property owners to recover from interim development authorities compensation for abortive expenditure where the completion of development lawfully begun is prevented under the provisions of the Bill. Further Bills are in the draft stage. These will cover recommendations of both Uthwatt and Scott, and will ultimately be incorporated in one all-embracing Bill.

*

Mr. Morrison has taken a very cautious first step, but it shows, at least, that MOTCP is not as moribund as appeared. There is no mention yet of that much needed permanent planning commission. It is doubtful whether many local authorities at present (with a few definite exceptions) have the right personnel or the right attitude to plan their localities effectively, and to educate local authorities, to inspire them and to staff them with properly trained architects and planners is one of the most vital jobs a planning commission could accomplish in its aim of providing a properly co-ordinated national plan.

POETS' CORNER

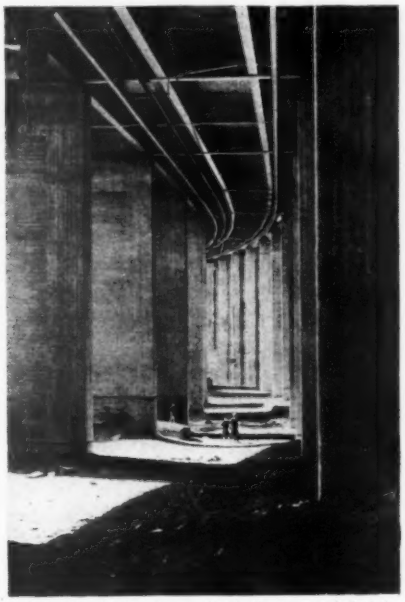
ARCHITECTURE IN TWO CENTURIES

Civilised houses in urban squares of the classic period
Stand trim as ankle, biscuit or fishing-rod,
The stucco and brick concise, pure, exquisite.

But rural masons, bobbing in wake of fashion, failed to fit
Local rock and skull and muscle to mimic
The Greek of Adams' (so Walpole fared by Wemmick).

They failed (as corn-fed pigeons bounding to emulate larks' elation)
To catch the right dimensions and decoration;
The lyric mansions of Bath and Richmond Hill
In thumping stone proved irreproducible.





Two bridges with an uncovered concrete finish. Left, the Pont de Pérolles at Fribourg, Switzerland, having a bush-hammered finish. Centre and right, the Traneberg Bridge, Stockholm, with a finish formed by timber boarding.

O but provincials in the earlier, curlier century
Took like birds with a will and a whistle to masonry,
Made manors cock-combed with date or with DOMINVS,
Learnedly charming, heavily curious :
Grey, or honey in Cotswolds, gay, tiarra'd
With chessmen, chimneys, solid, as costume florid,
Harlequin Euclids whose curtains of leaded panes
Made bottled emeralds of the fields and lanes
Before the land was trimmed like a horse to boast
More delicacy than was the nature of the beast.

Geoffrey Tillotson.

UNCOVERED CONCRETE

I hope JOURNAL readers studied the items on uncovered concrete in the *Information Centre* for February 4. Architects on the whole appear to be prejudiced against using the uncovered material itself as a surface finish to concrete buildings, presumably because they are unaware of the advantages and possibilities of this method of finishing and consider it to be somehow crude, if not indecent. The new Waterloo Bridge, for example, a reinforced concrete structure, has been masked with a stone covering, and has thereby probably lost a certain integrity and robustness in its character which a careful surface treatment of the concrete itself might have given it.

*

There are several advantages in concrete surface finishes, notably :—

(1) The crazing almost inevitable in rendered finishes is largely avoided.

(2) A great variety of texture and colour is possible by using different formwork and aggregates, by tooling, picking, hammering, scrubbing, wire-brushing and sand-blasting. Even decoration and sculpture forming part of the concrete itself can be incorporated by using moulds, as an *Information Centre* item points out this week.

(3) A very hard surface of even texture, proof against knocks, weather and crazing can be obtained by using formwork lined with water-absorbent wall-board.

(4) Great economy in labour and materials is effected.

*

Engineers have developed the use of uncovered concrete far more than architects, especially in bridges. There is, for instance, the magnificent Traneberg Bridge in Stockholm, whose 600-foot reinforced concrete span is one of the largest in the world. The finishing here is formed by timber board lining. The effect, though rough, is in scale with the great size of the structure. The Swiss, who have produced so many fine engineering works, have used uncovered concrete a good deal, notably in the Pont de Pérolles at Fribourg, an example of the skilful use of bush-hammering. In the photograph herewith you can see how well a modern reinforced concrete structure with a well-treated surface can harmonize with ancient surroundings.

*

No doubt there have been many failures in the use of concrete as a finish but these are in most cases due to lack of care and skill in the use of framework, and to the insufficiently strict control of the mix. The Committee for the Architectural Use of Building Materials, one of MOW's Post-War Building Study Committees, has something to say on this matter in its first draft report. The review of this states : " Aesthetic disadvantages of exposed concrete : suggestions for surface treatment and weatherings and for avoidance of unsightly joint marks. Recommended that further research be undertaken. . . ." That is a sound suggestion, and it is to be hoped that BRS and others are researching into this not unimportant technical matter.

*

Incidentally, if you are walking down the Mall, towards Trafalgar Square, look at the new building near the parade ground, which has become a familiar part of the war-time scene of London. It is an interesting example of an uncovered concrete surface finish in colour.

ASTRAGAL

PLANNING NOTES

HOW CHILDREN ARE KILLED

The Royal Society for the Prevention of Accidents has surveyed recent police reports of fatal accidents to children. The results are rather different from those that would be expected by orthodox town planners, but the figures are sufficiently striking for them to carry conviction. It is not surprising to hear that child walkers between the ages of 2 and 7 were the most frequent victims, the peak occurring at 5 years of age ; but unexpected that twice as many boys as girls were killed. It was not strange to learn that 80 per cent. of the accidents occurred whilst the children were playing or on pleasure, not on the way to school or on errands ; on the other hand it was unexpected that four times as many accidents should have occurred on restricted as compared with de-restricted roads. Over 80 per cent. of the mothers of these children were employed on household duties and less than 8 per cent. in factories or other war work. In 90 per cent. of the accidents when crossing a carriageway the child was running, often escaping from elders or chasing a dog or a toy. Surely here is a case for verges and raised curbs.

CAB IN USA.

Shall we retain our Citizens' Advice Bureaux after the war ? Are they a part of the future town plans ? The Kansas City Bureau of Information and Service was established on September 1, 1940, " to furnish information which will make it easier and more pleasant for citizens to transact business with their municipal government and to aid all citizens in obtaining quickly, without undue effort, the services from the various city departments to which they are entitled."

It seems to have been popular. The Bureau is more than an information booth. If a citizen of Kansas thinks the street in front of his home should be repaired ; if the garbage collector has failed to make his pick-up ; if the grass along the side walks needs mowing, he steps up to the Service Bureau, gets the complaint off his chest and the head of the bureau takes the matter up.

DISCUSSION GROUPS

A fourpenny pamphlet called *Our Towns*, by Elizabeth Halton, published by the Association for Citizenship, is just what is needed for discussion groups among interested but uninformed members of the public. It is sufficiently simply written for schools, but sufficiently lively for a bored C.D. post. Above all it is sound sense and gives plenty of points for discussion.

LETTERS

C. Tunnard

E. H. Ellis

C. D. Notley (*Managing Director, Cecil D. Notley Advertising*)

A. C. Dean, M.Inst.C.E.

Professor D. Arkina

Task

SIR,—It may interest some of your readers to know that *Task*, the American voice of architectural students and technicians, is now being published in New York, with editorial offices at 211 East 49th St. The work was taken over voluntarily by a group of architectural assistants there when the original editors went off to war. *Task's* policy will remain the same, at least three members of the new board having been associated with the magazine since its first issue.

Task represents organized groups of young architects and planners in schools, offices, and on the job all over the United States. Boston, New York, Washington and San Francisco have active committees, and others are located in colleges and technical schools in the smaller centres. The work of these groups and the role of the architect in the war effort will form the subject of the fourth issue, now being prepared.

The third issue, which contained two authoritative accounts of architecture and planning in the USSR, has been enthusiastically received by all sections of the profession, and with its increasing circulation *Task* has become no small force in the American architectural world.

I am sure that architects and assistants in England, where such excellent planning for war has been initiated by the ABT and other organizations, will be glad to hear that in spite of difficult conditions the work that *Task* has begun in the United States will be continued.

C. TUNNARD

St. Johns, Quebec

Farm Workers' Cottages

SIR,—The dismay that has been caused by the specification for Rural Houses has almost equalled in intensity that produced by the first sight of an income tax demand.

May I, therefore, draw your attention to one aspect of this matter that does not accord with the modern outlook.

The memorandum on materials and design says that " provided our modern materials are used with the same skill that the old craftsmen applied to theirs, there is no reason why our buildings should be inferior to theirs in quality and appearance."

This is, indeed, a masterly protest, for it is hard to find in the specification any use of modern materials, in spite of the fact that in some instances, I understand, large stocks of materials exist.

The scientific use of building materials to give improved standards of living accommodation is a matter that should be in the forefront of the minds of all, including ministerial officials, who are concerned with housing problems.

Yet apart from some lip service to progress, there seems to be little intention to apply to rural houses some of the new ideas that the building industry has developed during the past quarter of a century to lower the cost and improve the efficiency of housing. The use of concrete for bedroom floors is a case in point, as no insulating substances are to be incorporated to temper the dawn chill to the early riser : many other examples will leap to the mind of those with a knowledge of building materials.

It is sometimes argued that as public money is to be spent on providing rural houses only well-established materials can be used, as no official body can afford to take risks. There seems to be some conflict of opinion at this point between industry and official departments, as materials that industry might safely regard as proven in practice, as a result of their use in all parts of the world, are still regarded by officials as dangerous experiments that might not provide a sound security for public money.

The appeal to finance, however, seems to waver. So many substitutes for normal materials are now recommended, faute de mieux, because of war conditions, that tradition must often be deserted. May I, therefore, Sir, appeal for a more scientific consideration of building materials that are now available so that in spite of the present circumstances, new housing standards can be created and some small measure of progress achieved.

E. H. ELLIS.

Farley Green, near Guildford.

SIR,—As a man who is neither architect nor builder, but a keen student of new ideas in design, materials and manufacture, may I say that I am appalled at the lack of imagination and knowledge displayed in the official plans that have been put out for the 3,000 new cottages for rural workers.

I say new cottages, but if the plans are followed there will be nothing new about the result except that presumably the materials will not be second-hand even if the ideas are second-rate.

A study of the plans shows that hardly a single idea in house construction evolved since (say) 1904 has been included. The researches that have been going on for the last twenty years into new technical methods, have been completely ignored. No one in the Government departments concerned seems to have heard of one pipe plumbing systems, any form of prefabrication, or any of the newer materials that are available. Most of the plans call for pitched roofs which depend on timber—a material in short supply. One of the plans at least demands that a woman must walk twenty feet to put a kettle on the stove.

All this, to me, is extremely depressing and suggests that if the new ideas that are current on housing cannot seep through to official

quarters, we have little hope that we shall ever live in houses that show any advance on 1904.

I understand that the Ministry of Health was responsible for the plans of these proposed cottages and that the Ministry of Works was responsible for the proposed elevations. Here again is a queer situation. How on earth can we ever get good design with this sort of ministerial patchwork? Could not one Ministry employ a competent enough panel of modern architects to design buildings from the inside out?

The Ministry of Works should be the sole authority in these matters. It should have every available fact about new ideas in building and planning—it should be the great clearing house for ideas—a colossal Building Centre where every new process, every new material, the work of every competent architect would be tabulated, checked, examined, and documented.

If such a Ministry of Works worked and planned, we should have rural cottages that would be an object lesson to the world and a source of joy, comfort and convenience to our farm workers.

C. D. NOTLEY,
Managing Director,
Cecil D. Notley Advertising

London

Council Elections

SIR,—In your issue for April 22, Astragal mentions the methods of Council Elections, etc., of various professional bodies.

The information in regard to the Institution of Civil Engineers is, however, not technically correct. An Annual Election of Council is in fact held, but a Ballot list is prepared by the Council within its discretion although it *can* consider the names of nominees and members submitted for inclusion in the Ballot list by Fellow Members of the Institution.

There is no representation of local associations as such and they together with Overseas Members can only secure representation of their nominees if they are approved by the Council for inclusion in the Ballot list.

The inclusion of provincial members in the Ballot list is relatively rare. There is a local association sub-committee of the Council which is intended to keep contact with provincial activities but this is not a very live body and has not held meetings for a long time.

I can give this information with some knowledge as I happen to be a member of the sub-committee in question and was for many years Secretary of our own local association here.

A. C. DEAN

Manchester

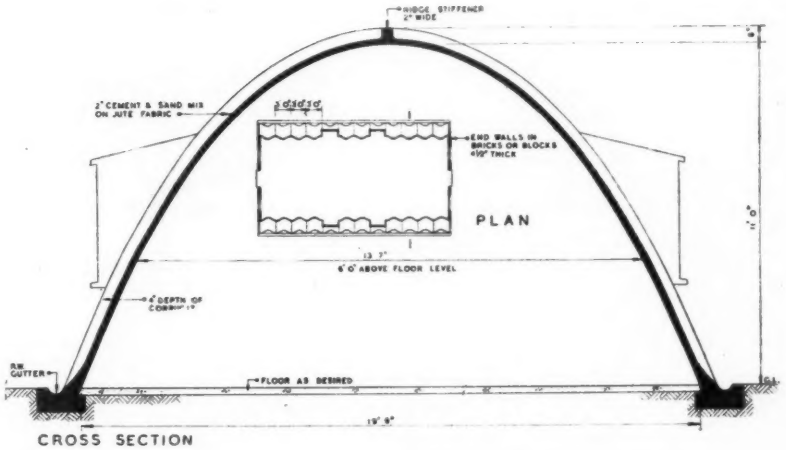
CABLEGRAM
from Russia

The following cable on an exhibition held by Leningrad Architects has been sent to us from Moscow by Professor Arkina.

Exhibition that has just opened in Moscow Architects Club represents practically all work done by Leningrad architects during war. Exhibits were sent here soon after armies of Leningrad and Volkhov fronts broke blockade that had bound Russia's northern capital for almost 18 months. Here are drawings and watercolours of Leningrad during siege, designs for restoration of damaged buildings, artistic posters on subject of city's heroic defence, drawings and plans illustrating methods of preserving most valuable architectural and sculptural monuments and finally design for monument to commemorate breaking of enemy blockade.

Small but very concentrated exhibition produces profound impression. Leningrad is a city of great architectural traditions. Its monumental architectural landscape is dominated by classic style introduced by eighteenth and nineteenth century builders who created amazing ensembles of squares,

ALL CONCRETE BUILDINGS
DESIGNED BY J. H. WALLER



CROSS SECTION

A series of arched and multiple arched structures of spans up to 60 ft. constructed solely of concrete, with no reinforcement and no timber, for the erection of buildings, such as huts, stores, factories, canteens and bungalows. The 1½ in. thick concrete arch can be moulded in the corrugated form. The arches can be of several standard widths and of any length. Temporary centering is of steel tubes. The provision of side entrances and dormer windows or skylights present no difficulties, and the ends of the buildings may be constructed by conventional methods or may be in the form of domed arched construction.

embankments, highways and imposing palaces. New Leningrad has developed this tradition subordinating its spacious new blocks to one integral plan.

It seems incredible that Leningrad's architects could turn out or even think of anything creative during those terrible months when great city became surrounded on all sides by dugouts, firenests, enemy artillery positions.

Only road linking besieged city with country was "iceroad" across frozen Lake Ladoga. Air bombings and bombardments weren't only terrors citizens had to contend with; to these were added cold and food shortage—blockade conditions that brought endless suffering.

Despite these conditions architects struggled on through terrible winter months working with whatever media and means they could obtain.

The joined battalions of city's defenders built fortifications on outskirts, planned and drew. Thus havoc wrought by German air bombings and artillery bombardments was liquidated by their intensive work. Reconstructive creative thought of architect was alive, tirelessly active, apparent everywhere.

Beside exhibits by Igor Fomin, Boris Rubanenko, Valentine Golly, Valentine Kamensky and others of plans for restoration of buildings there are plans and elevations of entire squares and city blocks that have suffered from war in one way or another.

Leningrad is rich in fine sculptured monuments. Bronze statues in squares were modelled by most famous sculptors of last two centuries. Its parks are populated by marble nymphs heroes gods. Leningrad's architects assumed responsibility for protecting monuments from air raid. Number exhibits show means by which this was achieved. Giant equestrian statue to Peter the Great, Etienne Falconet's statue of which Pushkin sang in his poems "Bronze Rider," and Mickiewwicz and other poets wrote, is now encased in covering of earth cement wood.

A similar case encloses another bronze equestrian monument to Bikolai, first near Saint Isaac's Cathedral. Bronze horses that crowned parapet of Anychkin Bridge were removed from their pedestals and buried. Same safety measure was used with regard to Old Leningrad Monument Restrellis statue of Peter the Great that stood before Engineers Castle.

Of outstanding historic and artistic interest are drawings and watercolours by Leningrad architects. They are landscapes corners of city recorded at saddest moments of its existence.

One cannot study without deep emotion drawings done by one of Leningrad's oldest architects, Professor Leo Ilyin. He was prominent figure in modern town building, one of authors of Leningrad's reconstruction plan.

He didn't want to leave besieged city and he went on working tirelessly. Every day he added to his sketch book new streets and squares. Then one day he was killed in street by shell splinter.

There is special section of exhibition allotted to posters of Leningrad's heroic defence.

Artists who drew them are architects by profession, fact which is evidenced by prevailing architectural themes: Red Army men are placed against background of Leningrad's ensembles those immortal masterpieces architectural landscapes—palaces, squares, embankments, streets of great city to whose defence whole people arose.

Last section of exhibitions allotted to designs for monument commemorating spot where blockade was broken. These projects were all shown at competition announced immediately after Red Army had made powerful thrust that broke through enemy encirclement South of Lake Ladoga.

PROFESSOR D. ARKINA.

This week Dr. Hajnal-Kónyi describes the principle and advantages of pre-stressing reinforced concrete. Apart from the important factor of economy in steel, emphasized in the leading article, the development of this method, by which it is possible to eliminate all tensile stresses in concrete members up to a maximum calculated load, should have a significant effect upon the future of building. It is to be hoped that the PWB study committee on Reinforced Concrete Structures will issue recommendations concerning this method, to which no bye-laws at present apply.

PRE-STRESSED Reinforced Concrete

[BY DR. K. HAJNAL-KÓNYI, *M.I.Struct.E.*]

Pre-stressed reinforced concrete was mentioned in this JOURNAL in connection with the wall units of a hut. (August 13, p. 110 and October 1, 1942, p. 215.) It may be of interest to explain the meaning of this term and report on the development of the technique of reinforced concrete, which it represents.

It is well known that concrete is a material of high compressive and small tensile strength. Since its introduction as building material great progress has been made regarding the quality and reliability of cement, on which its strength mainly depends, the choice of aggregates, etc. This development has resulted in a considerable increase of the compressive strength. Whereas some 30 years ago it was not advisable to exceed a "working stress" of 600 lb./sq. in., to-day a working stress up to 1,250 lb./sq. in. is usual and, in exceptional cases, even 1,500 lb./sq. in. may be adopted. The increased compressive strength has not, however, been accompanied by a corresponding increase of the tensile strength.

The main application of concrete is in members subjected to bending, or bending combined with axial forces. In view of the small tensile strength of concrete it is a standard rule to provide sufficient steel wherever tensile stresses may occur so that all the stresses can safely be taken by the steel only, if the tensile strength of the concrete is exhausted and cracks develop. In fact, all our designs are based on the assumption of a cracked section. (Fig. 1.) These cracks may or may not occur in the actual structure. Except for special cases such as water tanks, barges, etc., where cracklessness is essential, cracks are of no particular disadvantage as long as their width does not exceed a certain limit. Experience has proved that under normal conditions there is no danger of corrosion for the reinforcement if the cracks are not wider than say .01 in.

The width of the cracks depends on the amount of steel used as reinforcement and on the "working stress" on which the design is based.

Regarding the reinforcement a similar development has taken place as of the concrete. In the early days of reinforced concrete only mild steel of a yield point of 36,000 to 40,000 lb./sq. in. was used, and the working stress did not exceed 16,000 lb./sq. in. (To-day for the same material 18,000 lb./sq. in. and, in certain cases, 20,000 lb./sq. in. are permissible.) Since then various other reinforcing materials of much higher strength than mild steel have become available for which stresses up to 27,000 lb./sq. in., and in certain countries 34,000 lb./sq. in. are permissible. With this figure the limit is practically reached up to which the working stress of the reinforcement can be raised without the risk of dangerous cracking of the concrete. Steel of a yield point* higher than say 70,000 lb./sq. in. cannot be used as reinforcing material at its full strength with the same factor of safety on account of the cracking of the concrete.

*The term "yield point" for this type of steel is, strictly speaking, not correct. Its meaning is the stress corresponding to a certain elongation which is fixed by convention.

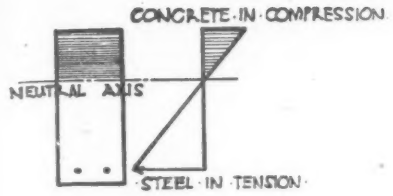


FIG. 1.
Stress distribution in ordinary reinforced concrete due to bending, after cracking. This is the basis of standard design.

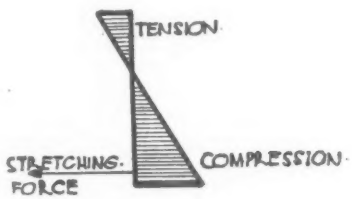


FIG. 2.
Stress distribution in reinforced concrete due to pre-stressing.

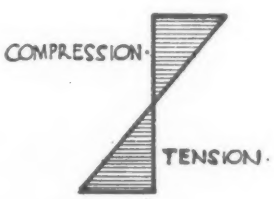


FIG. 3.
Stress distribution in a homogeneous section due to bending.

FIG. 4.
Stress distribution in pre-stressed reinforced concrete, due to bending (Figs. 2 and 3 superimposed).

FIG. 5.
Non pre-stressed beam.
(a) Before loading.
(b) After loading.

FIG. 6.
Pre-stressed beam.
(a) Before loading.
(b) After loading.

FIG 7.
Partly pre-stressed beam.
(a) Before loading.
(b) After loading.

The cracking of concrete is, therefore, a disadvantage for two main reasons:—

1. In certain types of structures it is essential to ensure that no cracks will occur;

2. It sets a limit to the permissible steel stress and prevents the economic use of steel of a "yield point" higher than 70,000 lb./sq. in., although steel of much higher strength is available and is comparatively less expensive than mild steel.

The method by which cracking of the concrete can be either safely prevented or greatly reduced consists in the introduction of permanent stresses of opposite sign into the concrete, i.e., of compressive stresses where tensile stresses occur under loading. This is called "pre-stressing." Figs. 2 to 4 illustrate this principle and show the characteristic difference between the stress distribution in an ordinary reinforced concrete structure (Fig. 1) and in a structure which has been pre-stressed. The pre-stressing force is applied by stretching the tensile reinforcement and releasing it against the concrete after the latter has obtained the necessary strength. Fig. 4 shows that the whole section is under compression as a result of superimposing the stresses due to the initial stretching (Fig. 2) and to bending (Fig. 3). The tensile stresses indicated in Fig. 2, which are induced on the compression side of the section, are comparatively small. They are either to be taken by a reinforcement, or a small pre-stressing force may be applied also on the side where they occur, so as to eliminate them entirely.

Without going into the analysis of stresses, the characteristic difference between pre-stressed and non-pre-stressed structures can be seen from Figs. 5 and 6. Owing to the counter bending moment induced in the pre-stressed beam, a curvature upwards is obtained in the unloaded beam. This curvature disappears under the design load.

Fig. 7 indicates the intermediate case of a partly pre-stressed beam which has recently been discussed in various technical journals. Since this method has not yet been adopted in practice, it need not be described further.

The idea of pre-stressing is almost as old as reinforced concrete itself and many early attempts were made for its application mainly in USA and in Germany. All these attempts failed for the following reason:—

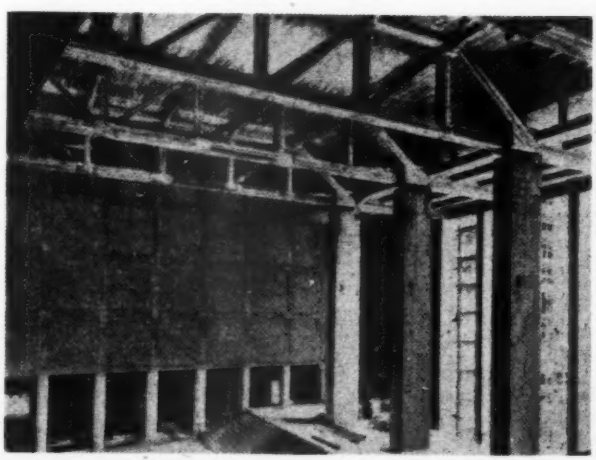


FIG. 8.
Post-stretched roof truss, System Finsterwalder, at the Airport Berlin - Tempelhof.

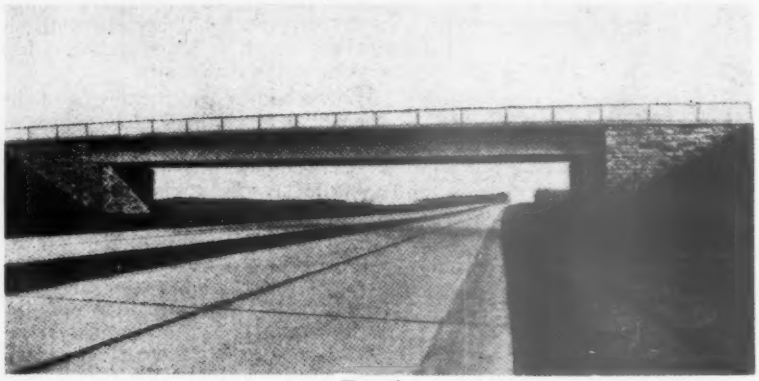


FIG. 9.

Precast Reinforced Concrete Girder Bridge of 108 *ft.* 3 *in. span across a German Motorway. The bridge consists of four main girders in pre-stressed concrete according to Freyssinet's method. The depth of the girders is* 5 *ft.* 3 *in. in the centre of the span,* 4 *ft.* 9 *in. at the supports. They are spaced at* 4 *ft.* 7 *in.*

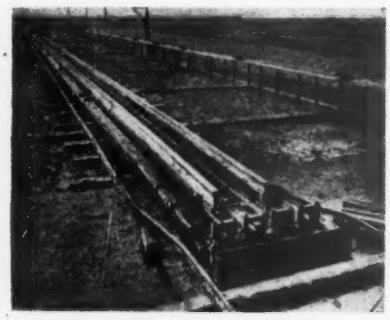


FIG. 10.

Manufacture of Pre-stressed Beams in Germany in accordance with Hoyer's method.

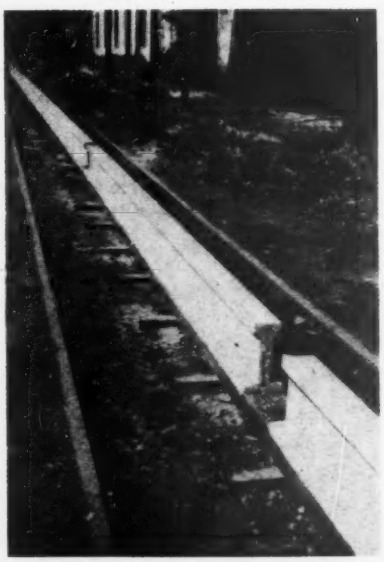


FIG. 11.

Closer view of Fig. 10. Note the gaps between the beams. The wires are cut when the concrete has obtained the necessary strength. No anchorage is required.

Owing to the elastic deformation of the concrete, part of the stretching force is immediately lost at release. This was known and taken into account. Further losses occur, however, due to shrinkage and to "creep." Creep or plastic flow of the concrete under stress was unknown in those days and was discovered only some 15 years ago. The cumulative effect of these losses may be 30,000 to 40,000 lb./sq. in. It is obvious that if mild steel is used, embedded in the concrete in the usual manner, and stretched to its normal permissible limit or even higher, the whole stress is completely lost after a certain time.

There are two ways to solve this problem. One is the application of the stretching force when most of the shrinkage has taken place (i.e., "post-stretching" as opposed to "pre-stretching," if the stretching force is applied before the hardening of the concrete), the other is the use of steel of such high strength that a substantial part of the pre-stressing force remains in the structure even after a loss of 40,000 lb./sq. in.

Post-stretching has been used extensively in Germany and to some extent in USA. In USA Hewett introduced in 1923 a method by preventing bond between the concrete and the reinforcing bars which are coated with a lubricant. Hewett's aim was the complete elimination of cracks. His method has been adopted especially in the construction of tanks. In Germany Dischinger and Finsterwalder provided post-stretched ties in bowstring bridges and lattice-girders. These two methods have made the construction of reinforced concrete trusses of large spans possible (260 ft. is the maximum span up to date). Fig. 8 shows an example of this type of structure. The tensile stresses in the concrete are considerably reduced but not entirely eliminated.

The other idea, the use of steel of exceptionally high strength, was adopted by Freyssinet (France) in 1928 for the purpose of obtaining a homogeneous material. The steel used by Freyssinet has a yield point of 120,000 to 180,000 lb./sq. in. and is therefore 3 to 5-times as efficient as mild steel at 1.5 to 2-times its cost. Beside saving steel, concrete can also be saved since the much smaller quantity of steel can be embedded in less concrete. Freyssinet's method is particularly suitable for pre-cast concrete work, and concrete girders can compete not only with rolled steel joists but even with big compound steel girders (see Fig. 9). The method has also been used for pipes subjected to very high inside pressure.

Freyssinet has succeeded in creating a new building material in which after shrinkage and creep no tensile stresses occur in the concrete under the maximum load for which the structure is designed. He called his method "Une Révolution dans les Techniques du Béton." In this way the cracking of concrete has been entirely eliminated and simultaneously the full use of steel of the highest strength as reinforcing material of concrete has been made possible.

In Germany Hoyer has adopted Freyssinet's principle and, with the support of the authorities, has established various factories for mass production of pre-stressed beams to be used in housing schemes. Hoyer introduced piano wire of an ultimate strength between 340,000 and 430,000 lb./sq. in. which is pre-stressed to about 200,000 lb./sq. in. in lengths of about 100 yards. (Figs. 10 and 11.)

Owing to the use of wires of a diameter of 1/25 to 1/5 in., the ratio between the cross sectional area and the surface of the bars is so favourable that no anchorage is required. At the release of the stretching force, i.e., at cutting the wires they wedge themselves at the ends automatically into the concrete and no slipping occurs in the beams when tested to failure until the ultimate strength of the reinforcement is reached.

The concrete used in these beams has a compressive strength of about 10,000 lb./sq. in.; its "working stress," as admitted by the German authorities, is about 3,000 lb./sq. in.

A large number of tests has proved that with these stresses a factor of safety of approximately 1.5 against cracking and of approximately 3 against failure is obtained.

Pre-stressing, both as "pre-stretching" and "post-stretching" opens new possibilities to the application of reinforced concrete. It allows the use of much lighter sections than possible in ordinary reinforced concrete structures, increases the limiting spans both of pre-cast and of in-situ constructions, and it should have a marked influence on the future development of architecture.

GENERAL FIXING INSTRUCTIONS FOR INSULWOOD BUILDING BOARDS.

	STANDARD	FLAMEPROOF	ANTPROOF
TYPICAL APPLICATION	Thermal and acoustic installations. Insulation generally. condensation prevention.	Thermal and acoustic installations. Fire-resisting walls. ceilings, partitions.	Facings, furniture and fittings. panels. and internal linings generally.
WORKING	May be cut with fine hand-saw. bevelled. etc.	May be cut with fine hand-saw. bevelled. etc., but only with textured face downwards.	May be cut with fine hand-saw. bevelled. etc., but only with textured face downwards.
JOINTING	Butted for paint. paper. and natural finish. permanent shuttering, etc. Joints ¼" open for cover strips or renderings.	Butt joints, or open joints with cover fillets	Butt joints. or open joints with cover fillets, suitable for plaster base.
NAILING	Panel pins or 1" tinned oval brads. or galvanized wire nails, or slate nails.	Panel pins or 1" tinned oval brads. or galvanized wire nails, or slate nails.	Panel pins or 1" tinned oval brads. or galvanized wire nails, or slate nails.
FINISHES	Distemper. oil paint. enamel. stains. paper. plaster base.	Distemper. oil paint. enamel. stains. paper. plaster base.	Distemper. oil paint. enamel. stains. paper. plaster base.
REMARKS	Also used as permanent shuttering, base to linoleum, wallpaper. plastic paint, stucco, etc.	Should not be used in conjunction with concrete or plaster.	For use where termites are experienced.

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INFORMATION SHEET

• 895 •

BUILDING BOARDS No. 2

Product : Insulwood Building Boards

General :

This is the second Sheet of the series dealing with fibre building boards, and sets out some of the main characteristics of Insulwood. The notes given on Working, Jointing, Finishes, etc., are typical only of the grade of board concerned, and are intended as a general guide for the selection of boards most suitable for the particular work.

Physical properties of the grades of board shown are given in the first Sheet of this series.

Composition :

Insulwood is a low-density wood cellulose fibre board, homogeneous and waterproofed during manufacture. It can also be obtained in flameproof and ant-proofed varieties, and in addition specially waterproofed.

Typical Specifications :

(A) *Insulwood to brickwork or masonry walls.*

Unpacking :

Insulwood sheets should be unpacked 48 hours before use and stacked loosely on edge in the place where they are to be fixed.

Use a fine saw for cutting, with the back of the sheet downwards.

Timber Nailing Strips :

Timber nailing strips not less than 2 in. by 1 in. must be secured to brickwork and/or masonry walls by means of plugs and galvanized screws at not more than 3 ft. centres. The lengths and widths of the Insulwood sheets employed must be governed by the general requirements of the building or layout plans provided. Nailing strips must be brought to an even plane with regular lines and arranged to provide adequate fixing at edges of Insulwood sheets ; 6 ft. sheets require three intermediates, 4 ft. two intermediates and 3 ft. one intermediate. Cross nailing strips must be inserted to take all end nailing. Should the walls be damp the nailing strips must be treated with a wood preservative which does not contain creosote.

Fixing :

Should the walls be damp, the backs of the Insulwood sheets and the internal face of the wall, must be coated with one or two coats of good red lead paint or an approved bituminous paint. On no account should sheets be forced into position, but they must be t and fitted so that they are in moderate co act only or a $\frac{1}{8}$ in. space may be left between the sheets. Nail first to intermediates from centre outwards in each direction, with $1\frac{1}{4}$ in. galvanized cut clasp nails at 8 in. centres ; finally, nail edge of sheets in a similar manner with $1\frac{1}{4}$ in. galvanized slaters' nails at 4 in. centres. It is important to nail $\frac{1}{2}$ in. from the edges of sheets, the nailing being in straight lines everywhere, care being taken that nails at the edge of adjacent sheets are paired.

Plaster Finish :

Should a plaster finish be contemplated, the sheets should be sparsely nailed along intermediates and left for 48 hours before completing nailing. Slaters' nails to be used throughout, spaced at 4 in. centres at edges and 8 in. centres at intermediates.

Important :

Where plaster or other rendering makes contact with Insulwood at angles, corners, etc. this contact must be reinforced or broken.

(B) *Insulwood to ceilings.*

Unpacking :

Insulwood and Plaster : Insulwood sheets should be unpacked 48 hours before use and stacked loosely on edge in the place where they are to be fixed. Use a fine saw for cutting, with the back of the sheet downwards.

Fixing :

The sheets should be fitted, allowing up to $\frac{1}{8}$ in. around all edges, nailing from centres of board outwards, maximum 18 in. centres. Galvanized slaters' nails to be used throughout, spaced 4 in. apart and $\frac{1}{2}$ in. from all edges ; nail 8 in. apart along intermediates.

Brushing :

The Insulwood surface should be brushed up with a wire brush before plastering is commenced.

Wire Mesh over Joints :

All joints must be filled with the plaster to be used and galvanized wire gauze lightly tacked over each with galvanized nails stretching tightly to form an even surface. A thin skim of plaster is then applied over mesh spread well over the edges of same. Each joint to be treated separately and the plaster work completed without delay.

Both external and internal angles must be treated in a similar manner.

Hessian Strip over Joints :

If it is desired to use hessian strip in place of wire mesh (it is advisable where pure calcium sulphate plasters are used) fill the joints with plaster ; then, after dipping strip in a bucket of thin plaster, trowel this over the joints without nailing. Treat each joint or angle separately and complete without delay.

Previous Sheet :

A previous Sheet of this series, No. 893, deals with technical data.

For Pimco systems of metal ceiling and partition fixing see Sheets Nos. 854, 858, 861, 864, 868, 872, 879, 884.

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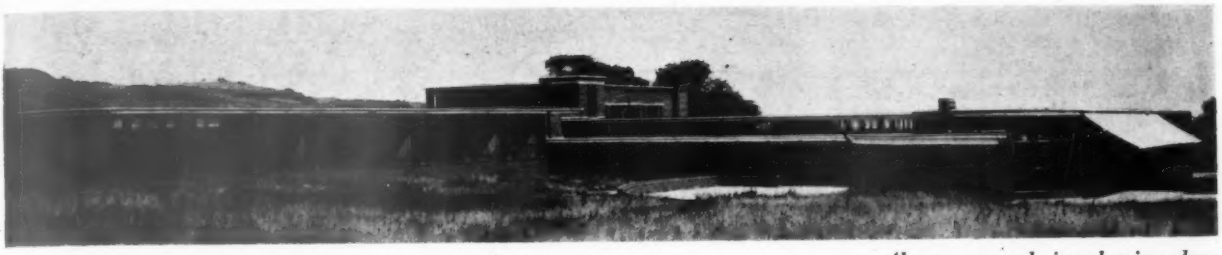
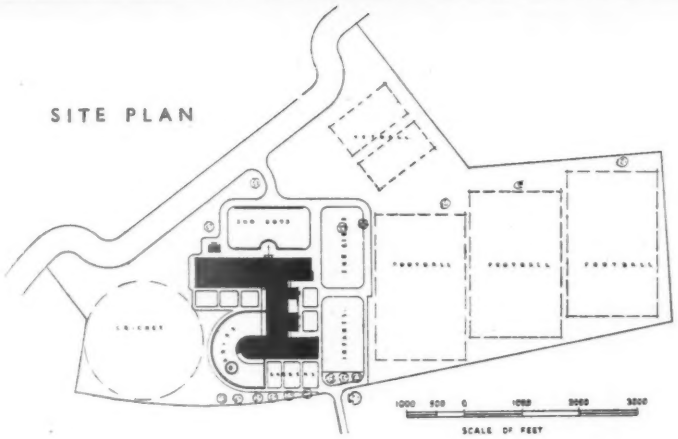
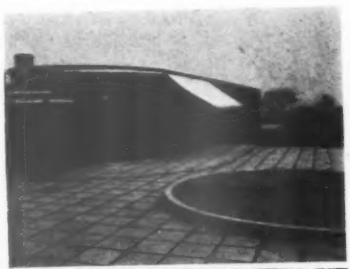


Above : general view showing classrooms, covered way and babies room. Below, from top to bottom : sand pit in babies playground, a classroom and a cloakroom.



SCHOOL AT ROWLEY REGIS

DESIGNED BY J. BLACKBURN



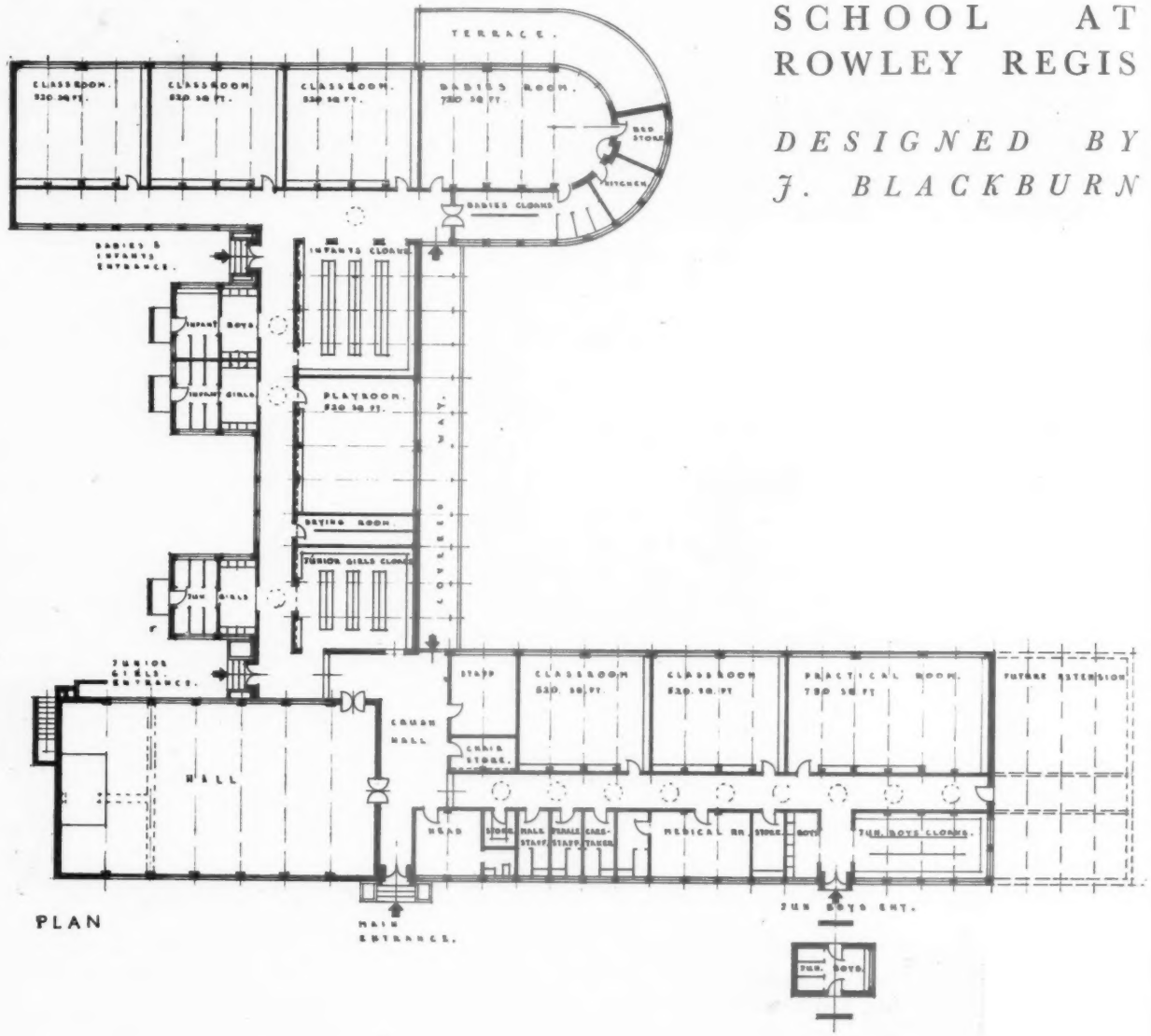
GENERAL—School for 50 babies, 150 infants and 150 juniors in the centre of a new housing estate. It was stipulated that the cost should not exceed £16,000 and that the babies department should have a separate playground.

PLAN—An open single storey plan, based on a 6 ft. grid to suit the asbestos cement roof slabs. The light roofing material enabled the cost to be kept down to the required figure without sacrificing modern innovations in school design or equipment. The assembly hall and playroom are planned to avoid noise disturbing the remainder of the school. There are a covered terrace to the playroom, a private circular playground for the babies, and wide entrances without gates to the lavatories and cloakroom. Each classroom looks out on to its own garden.

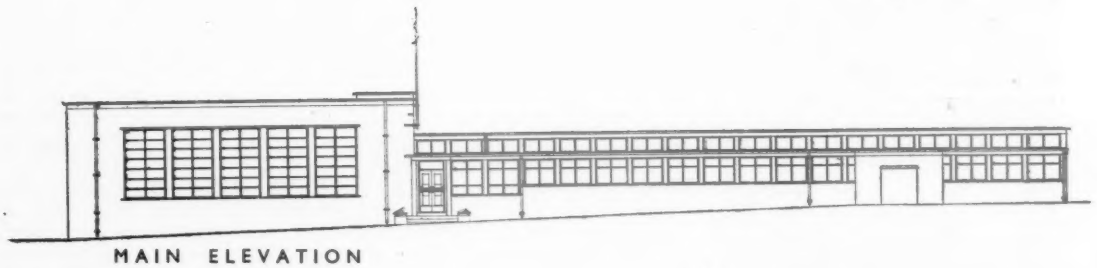
CONSTRUCTION — External walls ; 11 in. hollow brick, with 3 in. rustic facings ; internal walls, 4½ in. brick, with 4½ in. by 9 in. piers ; internal wall round assembly hall, 11 in. cavity for sound insulation. Classroom roofs : 12 in. by 5 in. steel girder spanning centre with a 6 in. by 3 in. R.S.J. fixed at right angles, on to which are notched 9 in. by 4 in. wood joists to divide roof into 6 ft. bays, the whole covered with 6 ft by 2 ft. by 2 in. hollow asbestos cement slabs and finished on the underside with wall board. Cloakroom roofs : asbestos slabs on 9 in. by 4 in. joists supported on steel columns which also form uprights for the tubular cloakrails. Other roofs are : administration block, 2 in. asbestos cement slabs ; corridors, lavatories and babies cloaks, 6 in. reinforced concrete ; terrace, 8 ft. by 2 ft. by 2 in. asbestos slabs supported on 2 in. steel tubular columns. Floors : classrooms, hall, playroom and medical inspection room, granwood blocks ; corridors, lavatories and cloakrooms, granolithic paving ; playgrounds, 2 ft. square green coloured concrete slabs, laid basket pattern. The windows to the teaching rooms and the staff room are fully opening, horizontal and folding type on slate slab cills, and have external sun blinds let into the eaves. The same type of window is fitted to the playroom and babies room, but installed at floor level.

SCHOOL AT ROWLEY REGIS

DESIGNED BY J. BLACKBURN



PLAN



MAIN ELEVATION

INTERNAL FINISH—Each classroom has a plastered wall and is finished in a different colour scheme. Other finishes are: door frames, pressed steel, picked out in bright colours; horizontal sliding blackboards, painted black one side, primrose the other; corridors, fair-faced brickwork, painted dado and wall filling; children's lavatories, glazed brickwork, asbestos cement partitions; staff lavatories, Keenes cement dados, painted, 3 ft. high, painted fair-faced brickwork above; w.c. partitions, asbestos cement; assembly hall; plastered and finished in washable water paint, stage natural oak, doors glazed top to bottom, horizontal glazing bars. Classrooms have built-in lockers and furniture, babies room moveable furniture.

The general contractor was Joseph Webb, of Coseley, Staffs. For list of sub-contractors see page xxx.

Looking along the main front.

The function of this feature is to record 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. The ***Information Centre*** *attempts to supply an index and a digest of scientific data, the lack of which has for too long been a handicap both to the technician and the planner. 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

1132 **Symposium**

CREATIVE DEMOBILIZATION. *E. A. Gutkind* (*Kegan Paul*, 1943; 21*s.*). An important symposium of current planning thought covering social planning, agriculture, industry and decentralization.

The book is largely composed of quotations from world-wide writers and forms a most valuable reference work on planning theories. It suffers from an inadequate index and the lack of a bibliography.

The way of the future leads from expansion and quantity towards integration and quality. The change will be enormous. It means the end of "economic man" and the emergence of "social man." Social man cannot be born until we have planned for him a favourable environment in which he will be free from economic insecurity but alive to social responsibility.

"Practically every step in social progress goes through the same three stages. First it is said to be contrary to the laws of God and man; then it is unconstitutional; finally, it is accepted as natural, proper and the only reasonable state of affairs."

The current output of surveys, reports and pamphlets will lead to nothing without a thorough integration of their contents.

In national planning four general principles seem to emerge applicable both to the social and physical fields. They are: integration, diversification, rationalization and balance. All of them belong together and their observance in national planning will give us a flexible and stimulating foundation on which to build a creative environment.

Three lines of action are instrumental in the planning of new and the reshaping of existing settlements. They are:

1. The splitting up of the whole area into sections.
   The method: a system of LINEAR arteries.
   The result: the primary grid of green belts and roads.
   The functions: recreating and distributing.
2. The differentiation of these sections among the main categories of use.
   The method: a system of SPATIAL zoning.
   The result: the organism of residential and non-residential districts.
   The functions: housing and working.
3. The subdividing of these districts into units.
   The method: a system of functional SPOTTING.
   The result: the secondary grid of open spaces and streets. The grouping, lay-out and internal structure of the units.
   The functions: recreating, distributing, housing and working.

Agriculture. In some parts of England a considerable redistribution of the rural population itself is going on; the larger and better villages are gaining and the smaller and poorer are losing. . . . Those villages which have amenities as piped water supplies, electric current and good transport (especially bus) services most easily retain their populations and even attract increases."

Several countries have developed factory farms with general processing plants supplied with raw material from the surrounding farms. They cover from 6,000 to 20,000 acres, even more. These factory farms have proved an important element in the modernization of agriculture.

Co-operation in farming is nothing new; the three field system asked for a considerable degree of co-operation and the village community was the result. If we envisage that the land of Britain can be worked as one unit subdivided into farms of varying size and character, new village communities will be the manifest outcome.

"Mere dabbling with one or two thousand acres here and there will neither solve the agricultural problem nor reabsorb any important number of people. One experiment on 20,000 acres would be of more value than ten on 2,000 acres each. With any plan for development on present farms half a county to a county might be the experimental unit."

"We would have our population settlements in districts of intensive agriculture where the soil was suitable for growing market garden crops or fruit. These require a great amount of seasonal labour which urban centres are most likely to supply."

Industry. Industry has been very mobile for about 2,000 years. There is no reason to suspect that this mobility has come to an end. Industry, concentrated in the village or manor, was dispersed over the rural area; then wandered to the mediaeval towns together with the rural population; then back to the country in the form of re-organized home industries; then concentrated again in the towns with the rise of the factory system. There it shifted from the centre to the periphery and to-day is on the point of decentralizing over the countryside with the help of electricity.

The movement towards the periphery is not desirable. It encloses towns in an industrial belt and splits them by industrial wedges along main communication lines.

The blame for present conditions cannot be laid on the industrialists. It is much more the failure of the administrative machinery to create a unified framework within which towns could grow systematically.

"There is no point in centralizing manufacturing unless it results in economies. A product that is used all over the country ought to be made all over the country, in order to distribute buying power more easily. For many years we have followed the policy of making in our branches whatever parts they were able to make for the area they served. As we grew in understanding we learned that the making of each part was a separate business in itself and that the final assembly line could be anywhere. This gave us the first evidence of the flexibility of modern production as well as indication of the savings that might be made in cutting down unnecessary transport."

A map of suitable "reception areas" for industry should show:

(*a*) The main features of the existing structure in regard to sex and age composition of the population; their occupational composition; number and types of industries; their unit

size ; the sphere of influence of service industries ; relation between built-up and available space.

(*b*) The main features of a potential structure in regard to the number and types of new additional industries ; number and categories of people to be employed ; diversified balance between old and new industries ; possible extension of service industries ; space needed.

Decentralization. Decentralization is far more the result of technology than of a reaction to overcrowding. It requires the selection of (*a*) sites suitable for new settlements ; (*b*) villages and towns which can be usefully extended ; (*c*) urban communities which need a re-settlement of part of their population.

Decentralization and dispersal are dependent upon redevelopment of the urban and reconcentration of the rural structure of settlement.

It is commonly agreed that every urban community shall be surrounded by a permanent green belt to (*a*) limit their size ; (*b*) afford recreational facilities ; (*c*) produce fresh food. In addition this space must be connected with town open spaces by a green grid which shall split up the town into " neighbourhood units."

The assumption that the replanning of a town can stop at its political boundaries belongs to the age of paleotechnics. It discards all the opportunities which science offers us to-day. It is not enough to move boundaries, they must be abolished.

If we envisage a region as one functional unit in which " every community may become for a special purpose the centre of the region," the old relations between centre and satellites must undergo drastic revision.

" For any particular function the largest city in the group will often be subordinate to a smaller unit ; what is significant is not the quantity of inhabitants but the quality of service."

The neighbourhood unit creates the environment within which social relationship can be cultivated. There are the same division of pursuits as in a large industrial combine ; central management and decentralized achievements.

The logical conclusions from findings on access of light and air to dwellings is that the compact arrangement of buildings must give way to a wider spaced lay-out, and that their orientation must be independent of the lay-out of the traffic streets, which is subject to different considerations.

The space between traffic streets should be treated as an independent unit and its internal lay-out determined solely by considerations of how to provide the maximum degree of social and economic facilities to the inhabitants.

MATERIALS

1133 Concrete Surfaces

DECORATING CONCRETE SURFACES (*Concrete and Constructional Engineering, February*, 1943, *pp.* 39 *to* 40 *and* 55 *to* 63). Social effects of ugly building. Concrete decoration, sculpture, etc., monolithic with structure. Timber shuttering and plaster moulds.

The editorial to this article points out the social importance of the appearance of industrial buildings, hoardings, factories, towers and bridges. " Bare, dirty and ugly factory walls automatically create slums in their vicinity." For the proper appearance of such structures the decoration of bare concrete walls is of obvious importance. In contrast to simpler methods of forming smoothed or lined surfaces by means of lining the shuttering with sheets or strips of material this article discusses more ambitious schemes of decoration, including sculpture.

It should be noted that this does not mean applied decoration. Decorative features may be cast in the shuttering, or precast, and either placed in the shutters or fixed when the shutters have been struck. For simple repetitive design, timber shuttering, which can be used more than once, is the cheapest.

Plaster cast moulds may be used for more ambitious schemes. In this case undercut surfaces may be formed. The moulds are broken and chipped away. The face of the mould is often formed in coloured plaster to warn the workman when he is getting close to the concrete, so that the surface is not damaged. Photographs illustrate various types of decoration, and information on suitable designs and practical application is also given in the article.

1134 Book on Glass

THE PLACE OF GLASS IN BUILDING. *Edited by John Gloag* (*Allen and Unwin*, 1943 ; 7s. 6d.) Description of glass manufacture and types of glass available in England.

The body of this little book consists of pleasant photographs, illustrating the principal types of glass marketed in this country by the two principal firms, Chance and Pilkington. There are brief descriptions of the methods of manufacture employed for each main group of glass, e.g. sheet glass, polished plate, rolled glass, blocks, domes and so on, and tables giving various data, such as sizes manufactured, thicknesses, colours, weights and light transmission. The remainder of the text consists of short essays by Mr. Gloag, Professor Budden and Mr. Jellicoe on glass in building and its study in education.

On the whole, the book is a useful one, but the mixture of subject matter gives rise to the question of its purpose. Is it intended to be a brief edition of Mr. McGrath's comprehensive tome, or a philosophy, or merely a handbook ? Coming so near to being the latter, it prompts the suggestion that a really good, well-balanced handbook should be prepared —brief, but containing all the data necessary for the use of glass, which is not given here. The short essays incorporated in the present volume add little to its technical subject matter, and though excellent in themselves, might have showed to better advantage, expanded into a little volume of their own.

There is one point perhaps worth a separate comment. Mr. Gloag, in an attempt to be balanced in his enthusiasm for glass, has perhaps done it an unnecessary disservice. He rather decries the large expanse of glass in a room, and one reason given is the heat loss. This point is often overdone ; a great deal of the heat loss due to windows is caused by the fortuitous ventilation through cracks, so that it is probably not the size of the window so much as its design and manufacture that counts.

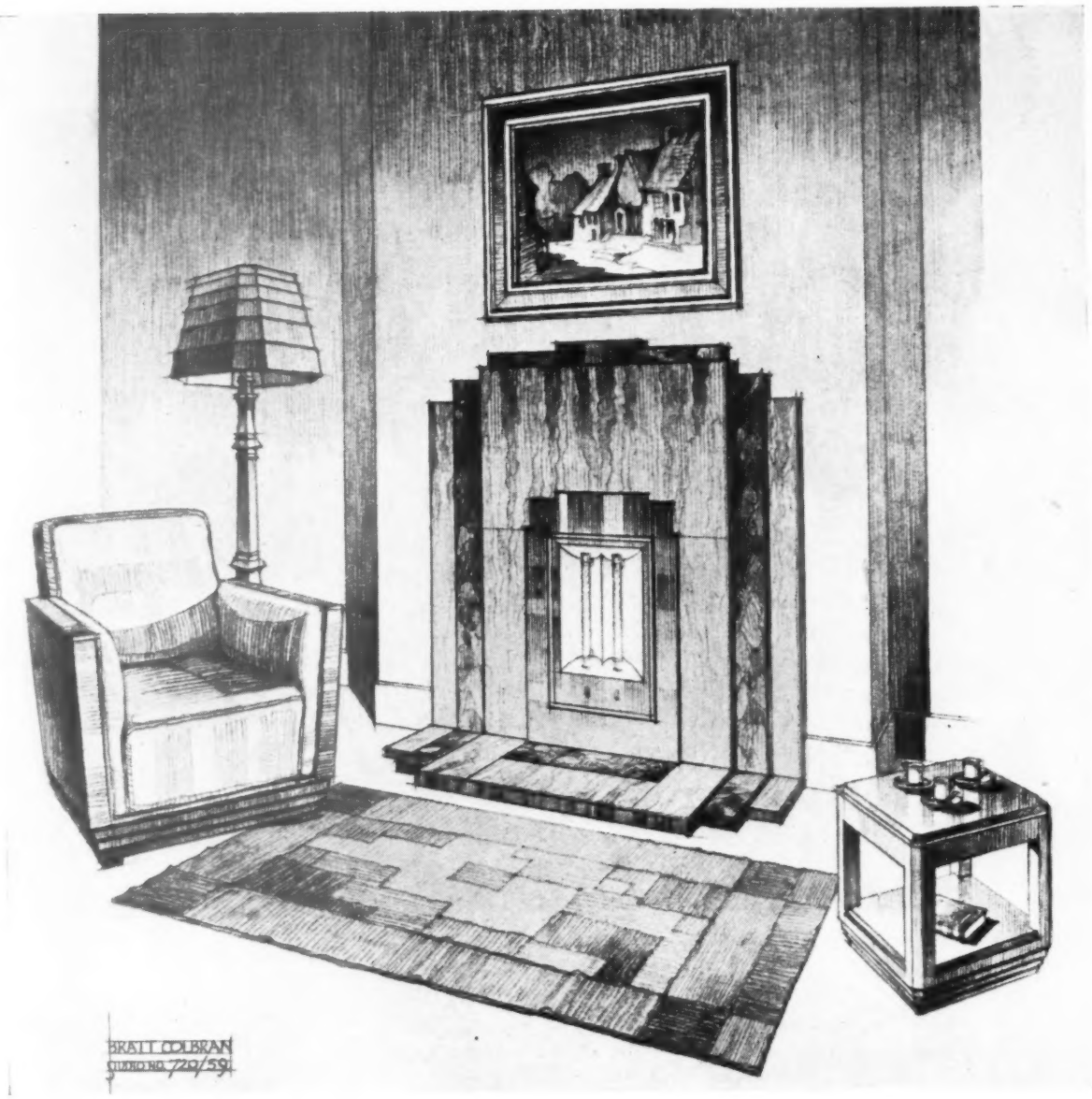
1135 Concrete Tests

SOME LONG TIME TESTS ON CONCRETE. *M. O. Withey and K. F. Wendt* (*Journal of the American Concrete Institute, February*, 1943, *pp.* 221 *to* 238). Three series of concrete specimens, cured outdoors, under water and in the laboratory, tested at ages up to 30 years. Variables in types of cement, coarse aggregate, consistency and methods of placing.

At the University of Wisconsin there are in progress three series of long time tests on the strength of concrete : specimens made in 1910 (A), 1923 (B), 1937 (C). More than 2,500 concrete cylinders and a still larger number of mortar briquets and cylinders were made for these test programmes. It is planned to continue testing specimens of the series A and C for 50 years, those of series B for a century.

Various brands of cements, various aggregates and mixtures with different amounts of water and methods of placing were used and the specimens were stored outdoors, under water and in the cellar. It is estimated that during 30 years of exposure specimens of series A suffered 750 cycles of freezing and thawing.

The results show that the tensile



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strength of mortar suffers more from outside exposure than does the compressive strength. The compressive strength of concrete showed a good increase in accordance with the logarithm of the age, when cured unprotected on relatively dry ground in the climate of Madison. Curing indoors at lower humidities markedly reduced the rate of increase in strength after three months. The retention of excessive amounts of mixing water during the hardening of concrete resulted in a pronounced lowering of the rate of strength increase. The difference between the strength of concrete of 3 in. slump and 10 in. slump was greater as time increased. Little difference in strength was shown which can be attributed to the type of aggregates used. The use of an internal vibrator in placing concrete improved the strength and volume constancy. Both of these increases were probably due to the reduction in water content which was made possible by the use of the vibrator. The weathering qualities of all types of concrete were very good. As an average the strength of the exposed specimens 1 : 2 : 4 increased from 1,800 lb. per sq. in. at 1 month to 5,955 lb. per sq. in. at 30 years, and that of the 1 : 3 : 6 mix increased nearly in the same ratio. The concretes made in 1937 were much stronger at any age up to five years than those of comparable water : cement ratios made in the earlier series. This was due to improvements in the cement. The surface area of the cements used in 1910 was 1,045 $cm^2/gr.$; in 1923 1,100 to 1,295 $cm^2/gr.$ and in 1937 1,370 to 2,110 $cm^2/gr.$ (See Information Centre No. 1,103, A.J., March 25, 1943).

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*

1136 Scale of Fees

Q *Housing of Agricultural Workers War-time Emergency Programme. I have just been appointed Architect for two small adjoining sections of a scheme. Type plans, specifications and other literature received from MOH have been handed to me by the two Rural Councils concerned. Has any special scale of fees and expenses been agreed ? It would seem that, since these houses must be sparsely distributed, the employment of Clerks of Works is impossible ; this suggests very frequent visits by the Architect throughout building operations, if the rapid and satisfactory completion so much desired is to be achieved.*

A No special scale of fees has yet been issued. It is understood that MOH is consulting the RIBA and that the agreed scale will be published in due course.

1137 Fireproofing Thatch

Q *I am proposing to use thatch on some cottages in Cork for Agricultural Workers, if it can be rendered reasonably fireproof, the reason being that it is one of the few materials left which is not in short supply. Can you tell me about its fireproofing qualities and whether fire insurance is possible.*

A It was possible to insure thatched buildings against fire before the war, but what the present position is, in Cork, we are not prepared to say. As regards fireproofing, a copy of a leaflet on the subject, dated 1937, can be seen at the RIBA library. The authority is not stated on the leaflet. The leaflet reads as follows :—

FIREPROOFING OF THATCH.

The London County Council recommend the use of the two following mixtures for fireproofing thatch. Thatch is always wetted on the ground before fixing and these mixtures are used instead of plain water.

1. 1 lb. ammonium phosphate ; 2 lb. ammonium chloride ; 1½ gal. water.

2. 10 ozs. borax ; 8 ozs. boric acid ; 1 gal. water.

Insurance Companies will not recognize any form of fireproofing of thatch towards a reduction in insurance premiums. This is because all fireproofing mixtures are soluble in water and tend to wash out from the upper layers of the thatch.

If, on the other hand, reduction of premiums is not desired so much as actual protection from fire, the following suggestions may be useful :—

(*a*) It is sometimes the practice to fix a drencher pipe along the ridge from which the thatch can be flooded in case it takes fire on the upper surfaces from a spark from a chimney. This is an ordinary galvanized pipe, perforated on each side, connected to the rising main with a stop valve, above which is an emptying valve so that the drencher pipe can be kept empty to avoid damage by frost.

(*b*) When thatch takes fire from the top it will burn fairly slowly until portions of it fall between the rafters. It has been suggested that if the price is not of particular object it might be worth while covering the roof surface with corrugated asbestos sheeting and laying the thatch on the top. This would act mechanically in preventing the burning thatch from falling between the rafters and setting them on fire. The effect would be a delaying one which might well be worth considering if a fire brigade can be relied on to arrive within five or ten minutes or perhaps longer.

SOCIETIES AND INSTITUTIONS

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

HC

Mrs. N. Smith

April 13, at the Housing Centre, 13, Suffolk Street, S.W.1. Lecture on RURAL HOUSING, by Mrs. Neville Smith, of the National Federation of Women's Institutes. Chairman : Miss T. J. Owen, A.R.I.B.A.

Mrs. N. Smith : Many country women are living in cottages which are damp and make a great deal of unnecessary work because of the absence of conveniences such as modern cooking stoves, a piped water supply, sewerage, a supply of hot water and cupboards. Of the houses provided by District Councils some are good, but others are badly built and all are apt to be devised to meet town requirements rather than those of the country village. Reconditioning facilities are not widely used although good work has been done in some districts. Country women have been patient but are now becoming bitter, and their quiet revolt expresses itself by their leaving the village for the town. The proposed erection of three thousand new houses has been greeted with intense interest.

Country women in Derbyshire, Gloucestershire, Kent, Oxfordshire and other counties

have been induced to give expression to their views by means of questionnaires and informal discussions. They have shown a spontaneous and eager interest in the matter. Their demands have all been with a purpose and all concerned with the country family way of life. There are certain things they have all asked for, such as water brought to the kitchen sink, a supply of hot water, warmth, dryness and a bathroom. On the question of whether the kitchen should also be a living room the consensus of opinion is in favour. Some women say that if there was a separate dining room the men would not use it. A small scullery for washing up, etc., would usually be welcome. The country woman prefers her kitchen to look out upon the road so that she can see people passing by. She wants plenty of cupboards—a tall one for brooms, one under the stairs for coats, an airing cupboard with slatted shelves, a linen cupboard, book case, shoe rack and so on. She wants a higher kitchen table and sink, and this last she prefers to be of the double kind with a stainless steel ribbed top and a cupboard under.

In connection with the cooking stove there arises a problem. At present the country women have a most inefficient open range, and would like a clean, labour-saving cooking stove such as the Aga. But during most of the year she wishes to have the comfort of an open fire, and if she has to choose would prefer the open fire with its disadvantages. But is it possible for her to have both? Can she have an open range for use during most of the year and, in addition, a small stove for heating a boiler and for cooking in summer? The country woman wants a bathroom, and if she cannot have a separate bathroom would prefer a bathroom combined with scullery. In that case the bath could be covered when not in use and the cover used as a table. The scullery would be useful among other things as a place where husband and children could get rid of the mud on their boots. If possible, there should be two w.c.'s, one upstairs chiefly for use in time of illness and another outside. If there is only one the country woman prefers it to be outside.

Bedrooms should be larger than in the cottages specified by the Ministry of Health. Many country people still have large old-fashioned bedsteads for which the bedrooms in the new cottages are too small. Difficulties in heating prevent any demand for the combined bed-sitting room.

As to the little parlour, there is a general demand for this. For one thing, where else would father have his Sunday afternoon sleep? And where would young people do their courting? It is also the place where family heirlooms are kept, and these sometimes take the form of really good furniture. In this little-used room a gas or electric fire would be appropriate.

There should be separate places for foodstuffs: one for perishable things like meat and milk, another for things that must be kept dry, another for keeping vegetables for the winter and for preserves. Even now the country woman is keeping back some of the family's small supply of sugar in order to make jam.

Outside the house, but planned with it, should be places for perambulator, bicycle, tools and a carpentry bench.

Among other things for which a desire has been expressed is a paved way all round the house; this makes access to the clothes-line easier in wet weather and allows a busy woman to gather her garden produce quickly.

As to distance from the husband's place of work or the children's school, there is no objection to the children walking half a mile or the man bicycling two or three miles. What is important is nearness to the bus route, shops, church and village hall. The village should be planned close to dissipate the woman's feeling of loneliness.

Terrace houses are not liked, detached being greatly preferred; but for older people cottages might be built in pairs: a neighbour can be a great help in time of trouble or illness, and it is always pleasant to be able to pass the time of day with someone living near. Such communal services as a laundry are not asked for, though some country women welcome the communal playground for children.

As to rent, the £3 a week minimum wage has made a great difference, and country people would be willing to pay more for better houses. It is a mistake to think they care nothing about the appearance of the cottages. For example, they dislike the red-brick ones that have been put up in the Cotswolds. They want the house to look part of the village. They only go to live in the red-brick cottage because it is labour-saving and convenient.

PWB

Study Committees

The following is the second extract from the booklet issued by the Directorate of Post-war Building of MOW containing reviews of ten of the First Draft Reports and Provisional Statements of its twenty-three Study Committees. Reference should be made to the leading article and to the *Societies and Institutions* columns of the JOURNAL for April 22.

2. SUB-COMMITTEE ON THE DESIGN OF HOUSES AND FLATS. Secretary's Provisional Statement, October 2, 1942.

This Sub-Committee is not yet in a position to issue a First Draft Report. To keep other Study Committees informed, the Secretary has prepared a provisional statement which is here reproduced in full.

1. The Sub-Committee has examined some of the evidence so far submitted with a view to making draft recommendations on the subject of urban housing. Notwithstanding the large number of bodies and individuals invited to submit evidence, none of the suggestions made so far is so revolutionary in character as to require any radical departure from established practice in the design of the smaller houses for the community.

Survey of Evidence

2. Though at this stage it was not thought desirable, nor was it intended that consideration should be given to the wider aspect of planning, the Sub-Committee note with satisfaction the desire expressed in much of the evidence that future development should be more comprehensive and that local authorities should exercise greater control not only over the standard of design and construction, but over the whole aspect of planning, thereby ensuring the development of self-contained units as distinct from the separate pocket developments which have been so characteristic of the inter-war period and lead to undesirable segregation. The Sub-Committee has confined its attention at this stage to a brief survey of the evidence on house plans so far submitted. Plans were prepared for the Sub-Committee's consideration embodying many of the proposals made. In this memorandum the Sub-Committee draws attention to some of the more important points from the evidence.

i. The need for greater variety in the types and sizes of dwellings.

ii. An increase in the maximum floor areas and in the sizes of rooms over those prescribed in the Housing Acts and Ministerial memoranda.

iii. A demand for houses of the parlour type.

iv. Suggestions for varying present practice in planning the living accommodation which include:—
   (*a*) A living room with a small kitchen in a recess.
   (*b*) A living room with a range for cooking and a small kitchen with a subsidiary cooking stove.
   (*c*) A living room with a dining recess and a working kitchen in close proximity to it but with no provision for cooking in the living room.
   (*d*) A living room with a working kitchen in which meals are taken.
   (*e*) A large living room with a kitchen in which meals are taken and a small scullery in which food is prepared and washing-up takes place.

v. A limited recommendation for the provision of a utility room or a wash-house, this additional accommodation to be either within the dwelling or provided in the form of a shed outside.

vi. A very general demand for an improvement in kitchen planning and the introduction of labour-saving equipment.

vii. A more general desire that the bathroom should be provided upstairs and related to the bedrooms, though in some instances a demand remains for a downstairs bathroom usually communicating with the kitchen and used for the dual purpose of a bathroom and for washing clothes.

viii. Consideration of the plumbing arrangements of the house, bringing the circulating pipes on to one of the inner walls and protecting both the pipes and cisterns to prevent freezing in times of severe weather.

ix. A very general demand for additional storage accommodation (*a*) inside the house in the form of cupboards; (*b*) outside the house for the purpose of storing fuel, garden tools, etc.

x. The provision of a hot water circulating system in all houses.

Planning Standards

3. The suggestions made in the evidence which affect most materially any revision of generally accepted standard plans or the preparation of new ones are those referred to in paragraph 2 (iv), (v) and (vi). These can be met by a variation of the type of plans generally adopted in the inter-war period, but as an alternative some advantage may be gained by accepting as a standard unit certain parts of the house—such as the entrance hall, staircase and planned kitchen with equipment and planning the further accommodation needed round this unit. Both alternatives have been followed in the preparation of the preliminary plans which include certain standards set out below, which result from experience and some of which are supported by the evidence though not specifically referred to in paragraph 2.

The principles of these standards are:—

(*a*) Bathrooms should generally be planned on the upper floor and at the back of the house. Except in the case of one or two-bedroom houses, the bath and w.c. should be in separate compartments, the bathroom being next to the bedroom. There should be a basin in the bathroom, and in large houses a basin should also be provided in the ground floor w.c.

(*b*) That it is desirable to provide one open fire in one of the living rooms of the house and another in one of the bedrooms.

(*c*) Cooking should generally be carried out in the kitchen, and where impossible to place the copper elsewhere, the cooker, washing copper and sink should be grouped together so that a ventilated canopy can be fixed above these fittings to carry off fumes to the outside air.

(*d*) That some means of warming the larger kitchens in cold weather should be provided.

(*e*) In districts in which the open fire of the living room will be in general use for most of the year, a back boiler should be fixed and the hot water cylinder heated from this. In other cases and in higher rented houses it may be advantageous to heat water by means of a separate boiler situated in the kitchen or in a utility room. Alternatively provision could be made for

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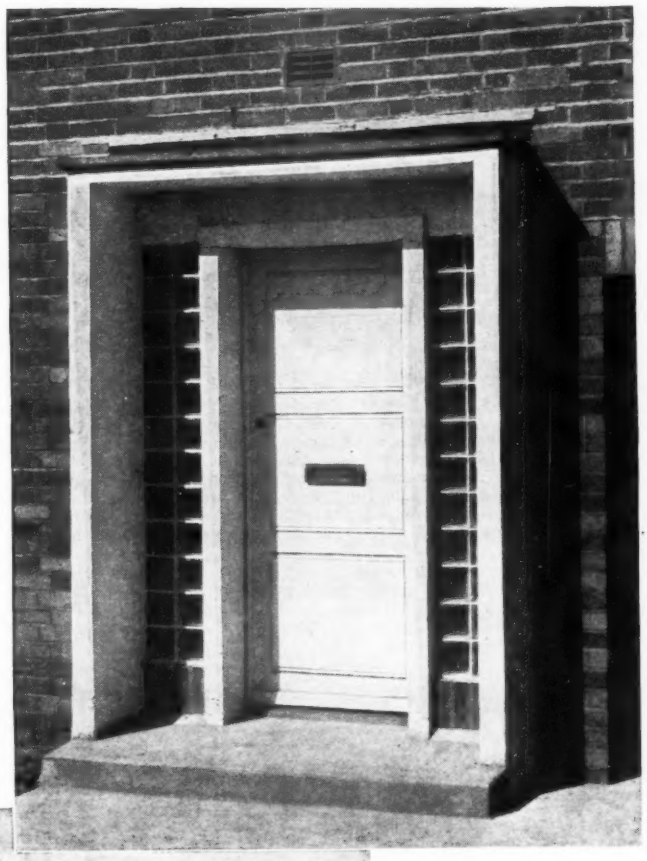

Glass Bricks used in the porch of a new house in Herefordshire. (This photograph is reproduced by the courtesy of Mr. G. A. Jellicoe, F.R.I.B.A.)

Glass Bricks used in the doorway of a new house near Kilmarnock. (This photograph is reproduced by the courtesy of Gyproc Products Limited.)

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heating the cylinder by immersion heaters when neither of the solid fuel fires is in operation.

(*f*) Coal and coke should be stored so as to be readily accessible from the house. The store should be fed from outside, avoiding the entry of coal dust into the dwelling.

These standards may be subject to a revision in the light of evidence due from the Study Committees of the Post-War Building Directorate.

Conference on Rebuilding in Europe

Mr. George Hicks, M.P., Parliamentary Secretary to MOW, attended a joint conference of the Allied Nations Technical Building Committee and LMBA at the Mansion House on April 28. The Lord Mayor and Lady Mayoress welcomed the members of the Conference to the Mansion House, and presided over tea.

The Conference, the third of a series between members of the Allied Nations Technical Building Committee and members of LMBA, was organized by PWB, Mr. W. E. Rice, Past-President of LMBA, presided. The purpose of the conference was to discuss technical matters connected with rebuilding in Europe after the war and the best ways in which British practice can be adapted to the needs of the occupied countries.

Among the countries represented at the conference were Belgium, Czechoslovakia, France, Greece, Holland, Luxembourg and Poland, as well as the United States, New Zealand and New South Wales. Mr. Hugh Beaver, the Director-General; Sir James West, Director of Post-War Building; and Mr. J. H. Markham, Assistant Director, represented MOW; Lieut.-Col. H. P. Cart de Lafontaine, the RIBA; and Mr. C. L. Cox, the Colonial Office. LMBA was represented by the President, Mr. H. C. Harland, and Messrs. R. F. Hill, Nigel Hannen, Leslie Shingleton, E. W. Garrett, F. A. Wallis, J. S. Galbraith, P. Smallwood, and Mr. W. J. Rudderham, Secretary.

Mr. George Hicks said he was gratified at the opportunity of meeting the technical experts of the Allied Nations, who are interested in many of the same problems as we are, although conditions in their countries might not be quite the same as in ours. We have much to learn from one another on the subject of building design and building erection even if our requirements and problems are not identical.

It is to be regretted, said Mr. Hicks, that so many of our colleagues in the Allied Nations are hampered in the study of post-war problems by the fact that through force of circumstances they are away from their own countries, but I am very pleased at the opportunity which we have, at the Ministry of Works, of being of service to such experts by freely putting at their disposal all the information which we have. At the same time we very much value their critical observations on what we do, as such observations often cause us to think again.

I am very happy to think, that I personally was connected with the first steps taken towards the establishment of this Committee, and I earnestly hope that all who have taken part in its deliberations will find that the information gained and the actions taken will be of value to them when they get back to their own countries.

TRADE NOTES

The tremendous demand for plywood for war requirements, leaves only a limited quantity, and certain types, available for other purposes. A booklet just issued by the Timber Development Association shows what types and sizes may still be obtained for general use, and gives sufficient technical information to enable the consumer to judge what kind of plywood best suits any particular job, the way to specify and order it, and to handle it to avoid undue deterioration.

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SCHOOL AT ROWLEY REGIS (pages 303-304). Architect, J. Blackburn, A.R.I.B.A.; general contractor, Joseph Webb. Subcontractors: Benham & Sons, heating; A. E. Chapman, lighting; Sumers Asbestos Cement Co., roofing; Williams & Williams, Ltd., steel windows; Granwood Flooring Co., classroom floors; Stuarts Granolithic Co., Ltd., corridors; John Elwel, structural steelwork; Thornley & Knights, paint; Blackburns, Ltd., steel fencing; The Regis Brick Co., bricks; Doultons, Ltd., sanitary goods; Ide's, Ltd., dome lights; Lockerbie & Wilkinson, door furniture; Thompson's, pressed steel door frames.

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