THE ARCHITECTS' JOURNAL

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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.
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8.
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. Belgrave Square, S.W.1.	Sloane 4522.
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.
CEMA	Council for the Encouragement of Music and the Arts. 9, Belgrave Square, S.W. 1.	Sloane 0421.
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), Sackville House, 40, Piccadilly, W.1.	Regent 4448.
FMB	Federation of 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.
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128-29.
ISPH	Committee for the Industrial and Scientific Provision of Housing. 3, Albemarle Street, W.1.	Regent 4782-3.
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.
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245.
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.
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.

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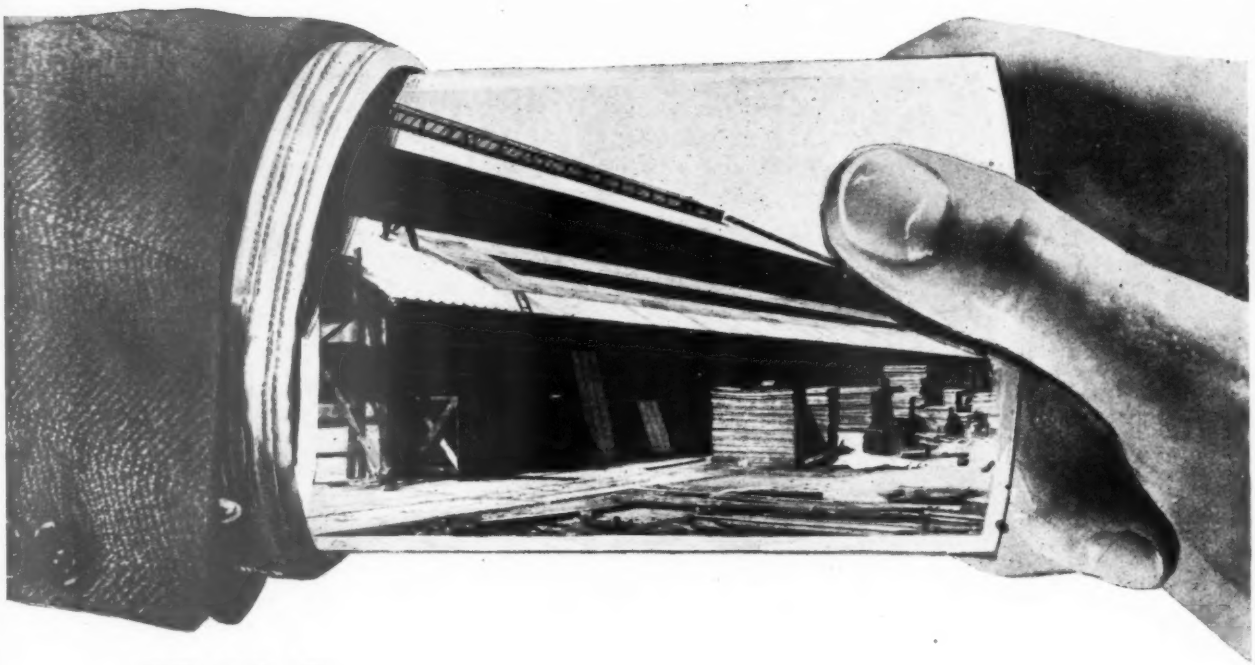
HTS

S.W.1

Alphabetical Index to Advertisers

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



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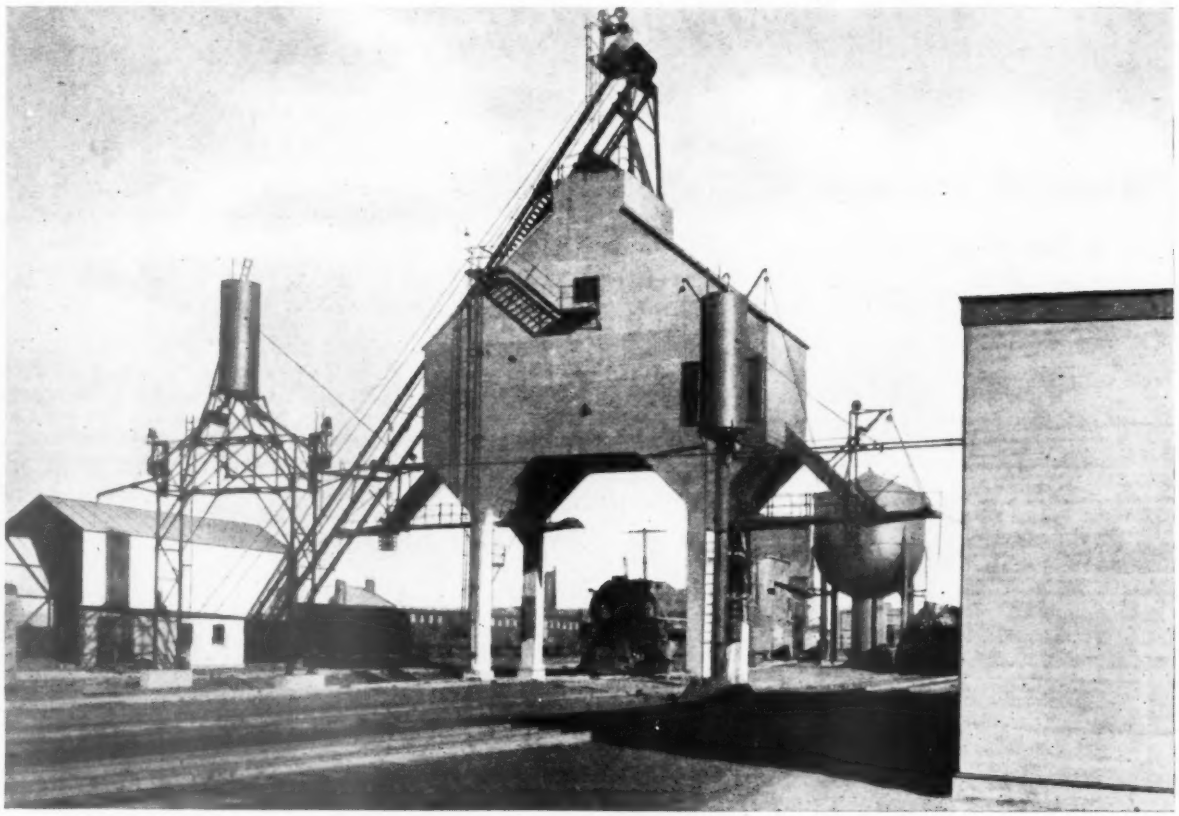

Reinforced concrete coaling plant, Decatur, Illinois, U.S.A.

REINFORCED concrete structures have played an important part in maintaining vital railway links for the transport of essential war supplies. This material has also been used extensively to protect vulnerable points of the system and to effect speedy repairs where damage has been caused by enemy action. Modernisation of the railway system, begun before the war, made extensive use of reinforced concrete, and in the years of peace it will again be the chosen material for new termini, station buildings, tunnel linings, goods depots and warehouses.

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Telephone: Whitehall 9936.

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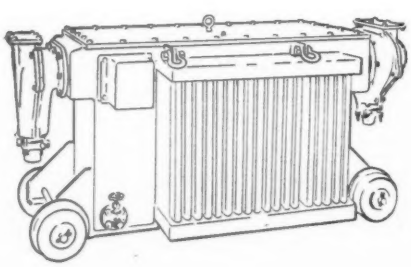
Research is the keynote of the development of the Brush Organisation, and its results are reflected in the world-famed standard of Brush Products.



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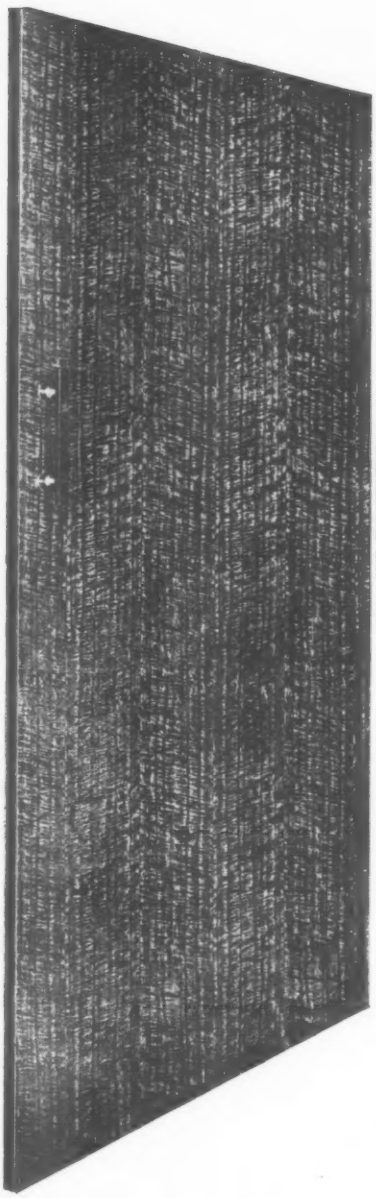

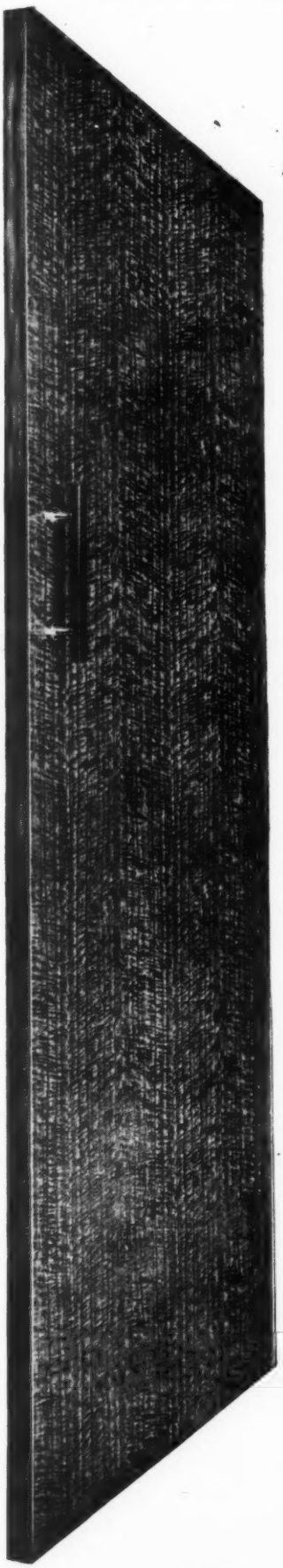

This advertisement is not for Today, but for Tomorrow's era of reconstruction.

We have perfected a new kind of door, with a revolutionary processed finish—"REPLICATE" doors.

For these we have chosen the most perfect specimens of grained woods, including the rarest and most exotic; these we shall reproduce with *true fidelity* by a unique process. The surface is finished in a hard durable way which develops the utmost detail of the fine specimens so reproduced.

"REPLICATE" doors will put the effect of almost priceless veneers freely at your choice.

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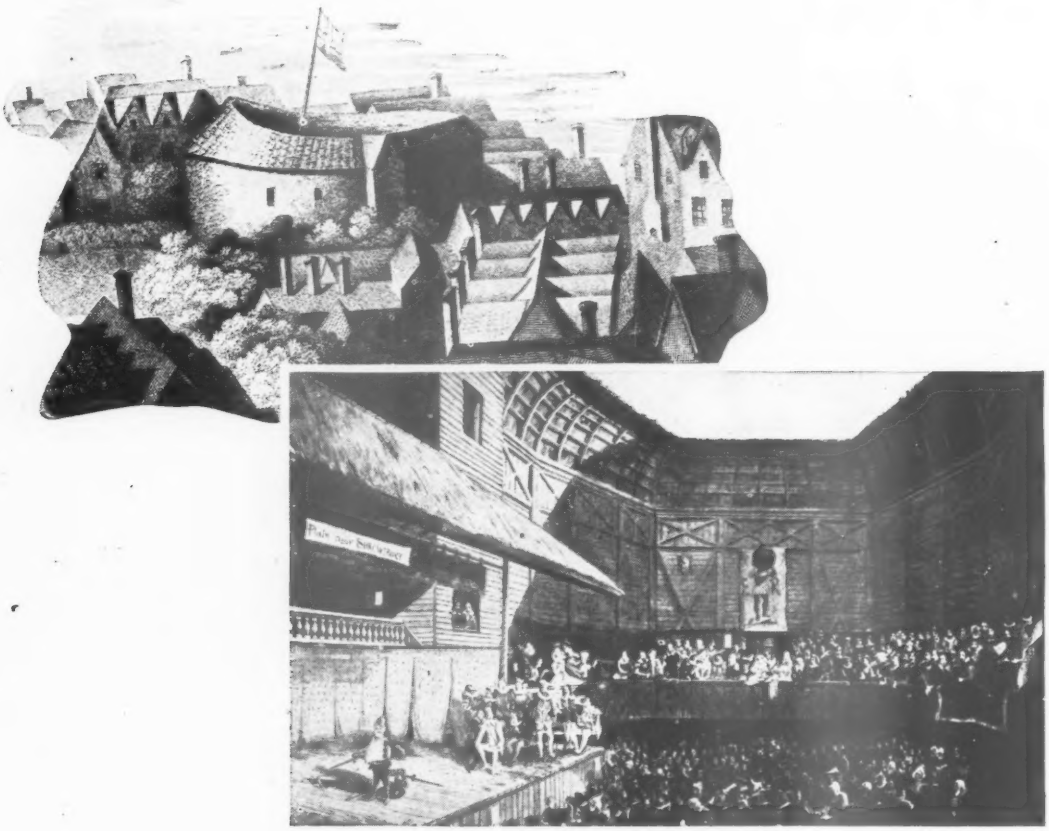


THE GLOBE THEATRE, BANKSIDE

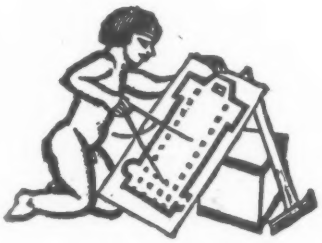
In England at the beginning of the 17th century The Globe represented the height of achievement in theatre construction. It is recorded, incidentally, that a contemporary theatre, The Fortune, "cost £550, whereas The Globe cost £600; but The Globe was painted and the former was not." In size The Globe was 43 ft. wide and just over 39 ft. deep, including a retiring room at the back; it was 32 ft. high from floor to ceiling.

It was a very popular theatre and one supposes from the records that it was much more comfortable and convenient than most other theatres of the time. The interior view above, by Pycroft, shows us how the theatre appeared in Shakespeare's day; the exterior is from an engraving of an extensive view of London by Hollar, 1647.

About 1644 The Globe was pulled down during the suppression of places of entertainment by the Puritans.

¶ *This advertisement is one of a series which briefly traces, from earliest times, the structural development of the theatre and places of entertainment, according to the "fashion" and requirements of the entertainment demanded.*

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



DIARY FOR AUGUST, SEPTEMBER AND OCTOBER

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

AVONCROFT, Bromsgrove, Worcs. *Living in the Country Exhibition.* (Sponsor, HC.) AUG. 14-18

BANGOR. *TCPA Conference.* At Powys Hall. 11 a.m. to 5 p.m. Chairman: The Mayor of Bangor, Mrs. Elsie Chamberlain. Mr. B. Price Davies on *Planning a Town* (with slides). Alderman Edgar Chappell on *Welsh Planning Problems.* Conference fee 3s. (Sponsor, TCPA.) SEPT. 10

BIRMINGHAM. *Living in the Country Exhibition.* At National Council of Social Service, Edgbaston. (Sponsor, HC.) AUG. 5-9

BOURNEMOUTH. *TCPA Conference.* OCT. 2

CARLISLE. *When We Build Again Exhibition.* At Messrs. Binns Ltd. (Sponsor, TCPA.) OCT. 2-9

EVERSLEY, Basingstoke. *Twenty Women at Home Exhibition.* (Sponsor, HC.) AUG. 9–16

EDINBURGH. *Rebuilding Edinburgh Exhibition.* At the National Gallery of Scotland, Edinburgh. (Sponsor, Edinburgh AA and the National Buildings Record (Scottish Council).) AUG. 5-14

HULL. *When We Build Again Exhibition.* At Mortimer Gallery. (Sponsor, TCPA.) SEPT. 1-11

HULL. *Conference on "Planning for Living."* In the Guildhall Reception Room. Conference fee, 3s. 0d. 11 a.m., Chairman: The Lord Mayor of Hull. Professor Patrick Abercrombie on *Hull in the National Plan.* 2.15 p.m., Chairman: The Bishop of Hull. Mr. Noel Curtis-Bennett, Chairman of the National Playing Fields Association, on *Living Needs of Industrial Cities.* Mr. Gilbert McAllister on *Towards a National Planning Policy.* The conference has been organized by Mr. R. G. Tarran. (Sponsor, TCPA.) SEPT. 4

LINCOLN. *Living in the Country Exhibition.* (Sponsor, HC.) AUG. 5-31

LONDON. *Royal Academy's Summer Exhibition.* At Burlington House, Piccadilly. 9.30 a.m. until 7 p.m. Weekdays; 2 p.m. until 6 p.m. Sundays. Admission one shilling. AUG. 5-7

County of London Plan Exhibition. At the County Hall, Westminster Bridge, S.E.1. Large scale maps and drawings, etc., of the County of London Plan for redevelopment, prepared by J. H. Forshaw, architect to the L.C.C. and Professor Patrick Abercrombie. Open to the public Mondays, Tuesdays, Wednesdays, Thursdays and Saturdays, 10 a.m. to 8 p.m.; Fridays 10 a.m. to 9 p.m The exhibition will not be open on Sundays. The Plan was illustrated in the *A.J.* for July 15. AUG. 5-14.

Civic Diagnosis of the City of Hull Interim Exhibition. At the Housing Centre. Maps, diagrams and photographs of the work of the Hull Regional Survey Research Group. (Sponsors, Leverhulme Trust, Lord Mayor of Hull and HC). AUG. 5-14

Your Inheritance Exhibition. At Carter Paterson's. (Sponsor, HC.) AUG. 5–14

Professor Sir Alfred Egerton. *Trends in the Development of Heating and Ventilating Installations.* At 21, Tothill Street, S.W.1. (Sponsor, IHVE.) 6 p.m. SEPT. 1

TCPA Conference. At Mortimer Gallery, 11 a.m. to 5 p.m. Speakers, Professor Patrick Abercrombie, Sir Noel Curtis-Bennett and Gilbert McAllister. SEPT. 4

LOWESTOFT. *The Englishman Builds Exhibition.* (Sponsor, HC.) AUG. 5- 7

MIDDLESBROUGH. *When We Build Again Exhibition.* SEPT. 18-25
TCPA Conference. SEPT. 25

MITCHAM. *Your Inheritance Exhibition* and *Twenty Women at Home Exhibition.* (Sponsor, HC.) AUG 5–7

NOTTINGHAM. *Your Inheritance Exhibition.* At Notts, Derby and Lincoln Architectural Society. (Sponsor, HC.) AUG 15–23

STOKE-ON-TRENT. *When We Build Again Exhibition.* OCT. 18-23
TCPA Conference. OCT. 23

WELWYN GARDEN CITY. *TCPA Conference.* 11 a.m. to 5 p.m. Mrs. Nicholl, Chairman of the Urban District Council, will welcome the delegates. Sir Theodore Chambers, Chairman of Welwyn Garden City, will also be present. The party will be conducted round the city. Speakers: Mr. F. J. Osborn, Mr. W. F. Eccles and Mr. R. L. Rice. Subjects will include the general aspects of planning and the planning and development of Welwyn. (Sponsor, TCPA.) SEPT. 18

WETHERBY. Film, *Rehousing in Great Britain.* (Sponsor, HC.) AUG. 5-12

NEWS

THURSDAY, AUGUST 5, 1943
No. 2532. VOL. 89

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.*

We regret to record the DEATH OF MR THOMAS HOWARTH former President of NFBTE.

His family had been associated with the building industry for over two centuries, and he had been successively president of the Rochdale MBA, president of the North-Western Federation, and president of the Institute of Builders, before becoming president of the National Federation. He was chairman of the Rochdale Juvenile Advisory Committee of the Ministry of Labour for 28 years, and in recognition of his services there was made an O.B.E. last year. His greatest service to the building industry was probably in the organization of the national apprenticeship scheme, which was adopted by the National Federation last year, and is now being put into operation. He was chairman of the Apprenticeship Committee, which prepared the scheme adopted by the National Federations both of employers and operatives last October, and it was in recognition of his work on this committee that he was co-opted to the Education and Apprenticeship Sub-Committee of the MOW Central Council.

★

Mr. Brown, Minister of Health, announced in the House of Commons that he is giving local authorities new powers to requisition empty houses, and is arranging to SPEED UP REPAIR of damaged ones.

from AN ARCHITECT'S *Commonplace Book*

PLUS ÇA CHANGE. . . . [*From* Early English Meals and Manners. *Edited by F. J. Furnivall, M.A.* (Kegan Paul, Trench, Trubner & Co., 1868)]. And when we have held to a custom merely because it is old, have refused to consider fairly the reasons for its change, and are inclined to grumble when the change is carried out, we shall be none the worse for thinking of the people, young and old, who "hated those nasty new oak houses and chimnies," and sighed for the good old times: And yet see the change, for when our houses were builded of willow, then had we oken men; but now that our houses are come to be made of oke, our men are not onlie become willow, but a great manie through Persian delicacie crept in among vs, altogither of straw, which is a sore alteration. . . . Now haue we manie chimnies and yet our tenderlings complaine of rheumes, catarhs and poses. Then had we none but reredosses, and our heads did neur ake. For as the smoke in those daies was supposed to be a sufficient hardning for the timber of the house; so it was reputed a far better medicine to keepe the goodman and his familie from the quack or pose, wherewith as then verie few were oft acquainted.

Housing, Mr. Brown announced, is to have the first call on immobile building labour after the demands of essential war building have been met. The new drive will include: Reconditioning bombed houses, completing houses left unfinished because of the war, and converting big houses into flats. The local authorities have reported that the housing position has become progressively worse despite the rapidity and efficiency with which war damage has been handled. The report urges that as early a start as possible should be made on new buildings. It also recommends: concentration of labour on the repair and maintenance of houses; adequate labour to be left with small contractors; permission for spending up to £250 on making houses habitable; and arrangements to be made for supplying timber, steel and paint.

First steps in the MOH scheme TO EASE THE HOUSING SHORTAGE are to be taken during August when local authorities will begin to requisition empty houses.

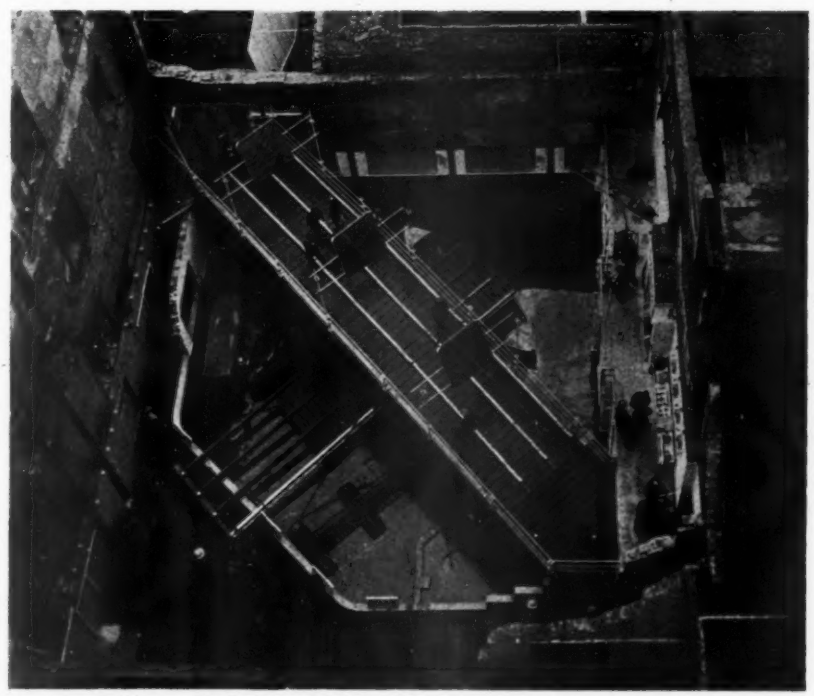
Three ministries—Labour, Works and Health—must agree before work can start on the promised intensified repair of houses and the conversion and adaptation of the bigger houses into flats and flatlets. Mr. Brown told a meeting of LMBA that 2,700,000 houses in England and Wales have been given first-aid repairs, and more extended work done to 1,100,000. In the London region alone, he said, 1,100,000 houses have been given first-aid, 510,000 further repairs.

The Royal Institution, Albion Street, Hull, has been seriously DAMAGED BY ENEMY ACTION.

The building was designed by Cuthbert Brodrick, and was opened in 1854. The principal facade was 160 ft. long and 40 ft. high, having a central portico of coupled corinthian columns. The whole covered an area of 2,200 sq. yds., and comprised a museum of local tokens, glass ware, pottery, silver, costumes, geological specimens, birds, butterflies and the like—which had been accumulated since 1822: a lecture theatre, in which most of the celebrities have given tongue, and the Hull Subscription Library founded in 1775, and its many rare and valuable books. Fortunately some of the objects in the museum had been removed, and some have been salvaged, and most of the library books had been stored elsewhere and so saved. Some forty years after the lecture theatre was opened, a nephew of the designer of the building gave a lecture in it on Gothic architecture; as he indicated some feature shown by the lantern on the screen, he stepped back and fell from the stage into the auditorium. The lanternist withdrew the slide, the audience gasped, when slowly there appeared silhouetted on the white circle a dishevelled head—and shoulders. The spectators burst into unfeeling laughter. The lecture was not resumed; the speaker was hurt.

MOW wish again to draw attention to the Statutory Rules and Orders controlling the rates of HIRE OF CONTRACTORS' PLANT and the prices of second-hand plant.

The Control of Rates of Hire of Plant Order (SR and O, 1941, No. 1277) prescribes the maximum rates at which various types of plant may be let or taken on hire, together with the permitted conditions of hire. These rates apply to all plant let or taken on hire; whether on Government work or on private or other work; and while the Order remains in force, it is illegal in any circumstances to exceed these rates, or to let or take on hire any item of plant or other item specified in the Schedule to the Order, except on the basis and conditions specified in the Schedule. The Schedule provides for payment on a time basis (weekly, daily, or hourly) at specified rates; it is, therefore, illegal to offer for hire, to invite for hire, or to let or take plant on hire, for example, on a yardage basis. The Control of Prices of Second-hand Plant Order (SR and O, 1942, No. 1163) provides (paragraph 3, sub-paragraph 2) that no person shall publish or issue any offer for sale of any of the items of plant specified in the Schedule to the Order, unless the name and address of the person entitled to sell, otherwise dispose, of that plant is also published. Any person advertising for sale any item of plant to which the Order refers must, therefore, specify the name and address of the person entitled to dispose of it, even though he is authorised to advertise for sale on behalf of that person.



An Army Exhibition, Equipping a Division, *is now open at John Lewis's bombed site. It has been designed and produced by MOI for the War Office. The Engineering Section shown above was designed in collaboration with Mr. Frederick Gibberd.* *See also page 89.*

President of BINC

Mr. Leslie Wallis, President of the Building Industries National Council and of the National Federation of Building Trades Employers, comes of a family which has been connected with building for three generations. His father, Mr. S. E. Wallis, J.P., has been three times Mayor of Maidstone, and he is himself a J.P. for the Borough. He is a member of the building firm of G. E. Wallis and Sons, of Maidstone and London, which has been responsible for the erection of many well-known buildings, including the Shakespeare Memorial Theatre at Stratford. Now 46, he was educated at Maidstone Grammar School, and served with distinction as a gunnery officer in the last war in France. Among his other activities he is Vice-President of the Maidstone Branch of the British Legion and is on the Board of the YMCA. He has been a member of the Council of the NFBTE since 1936, and this year succeeded Mr. T. Howarth, as President. He is an enthusiastic sportsman and plays cricket, golf, tennis and badminton.

A British Standard has just been issued by BSI at the request of MOW on HOUSEHOLD PAINT FOR EXTERIOR USE.

Realising that considerable damage with a corresponding financial loss would result from deterioration of property, the Government has considered it wise, in the national interest, to make paint available for the purpose of preserving property. A limited amount of the necessary materials is accordingly being released by the Supply Departments concerned for the manufacture of the paint. The paint is only for outside use where there has been deterioration due to exposure and should be applied only to areas where the existing paint film has worn off. The whole of the outside of the building should not be painted unless this is absolutely necessary. The paint will be made in four colours, viz.: cream, green, brown and chocolate, and will be sold in 1 pint and 1 quart containers. It has been necessary to use coal tar naphtha as the solvent, and as a result the paint may have a somewhat unpleasant odour. This is an additional reason why it should not be used for inside work. Copies of the specification are obtainable from British Standards Institution, 28, Victoria Street, London, S.W.1. Price 2s.

Concerning the bombing of Cologne Professor Patrick Abercrombie writes: WHAT ARE REALLY PRECIOUS and would be irreplaceable, if lost, are the smaller romanesque churches of Cologne—St. Gereon, the Apostles, St. Martin, and others. Let us hope these have not suffered the fate of our equally precious City churches.

This view is given by Professor Abercrombie in a letter in *The Times* in which he says: While we must all agree with Sir Sydney Cockerell in deploring the loss of irreplaceable works of art, it is necessary to correct the impression left by his letter that serious damage to, or the loss of, Cologne Cathedral is comparable to that of Chartres. Professor Abercrombie continues: With the exception of some fragments of the apse, Cologne Cathedral is a modern building. It possesses neither the vigour of medieval craftsmanship, the beauty of original sculpture, nor the patina of age. All the drawings from which it was built under Kaiser Wilhelm must be in existence; given labour and materials it could be rebuilt as well as or better (as the study of medieval workmanship has improved) than before. It must not be thought that Cologne is an example of Gothic revival: the medieval design was carried out; this gives it the splendour which it possesses—at any rate for me, though most of my ecclesiological friends who could not see beyond its hard mechanical detail condemned it roundly. If, on the other hand, Chartres or Monreale were destroyed, they would be lost for ever.

The RIBA announce that the following priority circuit has been arranged for the REBUILDING BRITAIN EXHIBITION.

Liverpool, August 12—September 4; Bristol, September 15—October 6; Exeter, October 18—November 8; Swansea, November 20—December 11; Cardiff (National Museum), December 20—January 17; Southampton, January 28—February 18; Leicester (provisional), March 3—March 24; Sheffield, April 4—April 25.

THE NEW SUPPLEMENT

THE delay over the formulation of an official statement on general post-war policy, especially relating to physical reconstruction, is rapidly creating an aura of unreality around even the most practical short-term plans and leading to some of the most earth-bound planners being termed Utopian. The congress organised by the Building Industries National Council could not have emphasized this more clearly. Five Ministers of the Crown on the one hand, and the building industry on the other—the ministers outlining ideas and activities about which the industry had heard much already, the industry making demands about which the ministers had heard much already—but no apparent movement towards any decisions on the vital issues which will affect post-war building. Sealed lips and clenched fists do not create that confidence from which constructive action springs, and so discussion was inclined to lapse into prefabricational prejudices, when it should have embraced practical questions such as the political, economic and physical means of providing for post-war housing needs in a specified time.

If ministerial pronouncements indicating that "there will be no stones left unturned or avenues unexplored" in arriving at decisions as to the guiding policy behind physical planning, continue to be uttered without any evident decisions being reached at the end of the war, Ministers will find their stones being shovelled into unsightly little heaps, and their avenues being explored and exploited by undesirable tramps, the removal of whom will necessitate further pronouncements over their concern as to decisions being reached. All this will certainly provide work for ministers and leader writers but it will spell the ruin of hopes in planning for the general well-being of the community in all spheres of its life. A conception which has been so ably worked out by experts in different fields, whose reward is only to be found in critical appreciation of their plans by the people and the subsequent creation of machinery for their realization by the Government. The critical appreciation of post-war plans by the public has been widespread, from careful expert consideration to discussion groups in the Forces, from the Court of the Common Council of the City of London to the housewives of Preston. The creation of machinery for the realization of the plans meanwhile hangs fire; there are no pronouncements on the wider issues which will govern the creation of this machinery. Reasons are given and theories are advanced as to the cause of the delay: "the war comes first," "Threadneedle Street rules supreme" or "a war-time coalition government is not capable of dealing with these issues." Whatever it is, we must soon discover the cause and see our way to overcoming it, or else we can look forward to an era, when the unity provided by external danger is removed, either of unprecedented chaos or of planning under some form of centralized control which makes the individual subservient to the

state. The preliminary steps towards post-war reconstruction can only be taken with the confidence which arises from knowledge that plans will be judged on their real merits, which are their practicability and the contribution they will make to the welfare of the whole people, not the subtlety of their compromise with vested interests.

The Physical Planning supplement therefore starts with interest in the subject at a premium, with movement gathering speed but with direction unknown. It is to be hoped that the interest which is shown by experts and people alike will lead to a further crystallization of their ideas and hopes on the subject and its determining factors, giving the Government a lead on the main trends of public opinion on these vital problems and showing that it realizes their urgency. For it is as important with matters of national policy as it is with physical plans that the people should feel they have a part in their formulation. The JOURNAL hopes by relating the various aspects of physical planning in the new supplement to assist in this work.

The Architects' Journal

War Address: 45, The Avenue, Cheam, Surrey

Telephone: Vigilant 0087-9

NOTES & TOPICS

MOW *versus* MOH

The debate on the Ministry of Works vote in the House of Commons on July 23 threw the spotlight on to the war that has for some time been "secretly" waged between the Ministers of Works and Health for control of post-war building. The criticism that was levelled at MOW came from two main sources —the National Liberals (who, of course, are pro-Brown) and the small group of men who criticize everything on principle, hoping that they will make the headlines. They certainly did on this occasion.

★

"The conflict between Lord Portal and Mr. Ernest Brown involves the future status of their departments," wrote the Political Correspondent of the *Nottingham Journal* recently. "Since MOW was first raised to the rank of a department with a Minister of Cabinet status, it has been carrying on a vigorous campaign to safeguard its position at the end of the war, when the swollen ranks of Ministries will be pruned. Mr. Churchill has already indicated that there are too many ministries. Some will have to go. Is MOW to revert to its former status of a second-grade department? It held that position before the war. It was advanced to Cabinet status when Lord Reith was appointed Minister of Works and Planning. Since then it has been under eclipse. Its planning powers have been taken away and given to a new ministry. It is now trying to restore its position by taking powers over housing which have been exercised by the Ministry of Health since its formation."

★

"The case for the transfer," the writer continues, "is based on the necessity of keeping all building under one control, though at the present time the Ministry of War Transport and the Ministry of Town and Country Planning both have certain housing responsibilities (in regard to ribbon development). If the transfer is made, the Ministry of Health would have more limited functions and rank as a Ministry of Medicine. Its authority over the local authorities would be very considerably curtailed. The decision has not yet been taken, but it cannot be much longer delayed as, if the change is to be made, it will be necessary for the transfer of staffs to take place while the war is still on, so that the post-war work can be launched without delay. A decision to fortify the Ministry of Works at the expense of the Ministry of Health would certainly be followed by the resignation of Mr. Ernest Brown, and it is probable that he would be succeeded by an eminent doctor."

★

Every attempt was made to discredit the Ministry of Works during the Friday's debate, particularly by Mr. Henderson Stewart, who announced that the delay in supplying the famous 3,000 cottages was not caused by MOH, and promptly inferred that MOW was butting in on someone else's province. Here are some quotations from Hansard: Mr. Henderson Stewart (Fife, East): "I would rather not follow my hon. Friend in his most interesting discussion upon the general housing situation . . . his appeal should properly have been addressed not to the Ministry of Works, but to the Ministry of Health, which has been in the past, and will undoubtedly be in the future, the Ministry principally concerned with housing." An open reference to the war between MOW and MOH.

★

Wing-Commander James (Wellingborough): "Might I suggest that it (MOW) should direct its attention to present building, and leave post-war building to the Ministry of Health?" Another sortie in the civil war.

★

Sir Jonah Walker-Smith (Barrow-in-Furness): "The Ministry of Works should not be encouraged to rob an efficient Paul in order to pay an inefficient Peter." Meaning that the C (*b*) grouping scheme should be dropped, and the Ministry of Health and individual firms be left to do the job.

★

And here is a statement made last week by Mr. Leslie Wallis: "I am

convinced that MOW wanted to appear as a bright-eyed boy and erect this 'modified' cottage by means of large contractors thereby showing up MOH's inability to obtain tenders as MOW has done, believing that the public would think, as indeed some of them did, that a cottage is a cottage and, after all, what is there in a plan?"

*

These are all deliberate attacks on Lord Portal's Ministry. Evidently the war is reaching a climax. Whatever interests are causing this strife, the greatest good of the greatest number does not seem to be one of them.

PLANNING FOR CABBAGES

Come, friendly bombs, and fall on Slough,
And get it ready for the plough.
The cabbages are coming now.
The earth exhales.

This pre-war prayer of the poet has been answered. As a result of the war, we are becoming less a nation of shopkeepers than of allotment holders. Over the whole country, open spaces of every kind, from railway embankments to blitzed building sites, have been cut up into vegetable plots. The land has become a green eternity of kitchen garden.

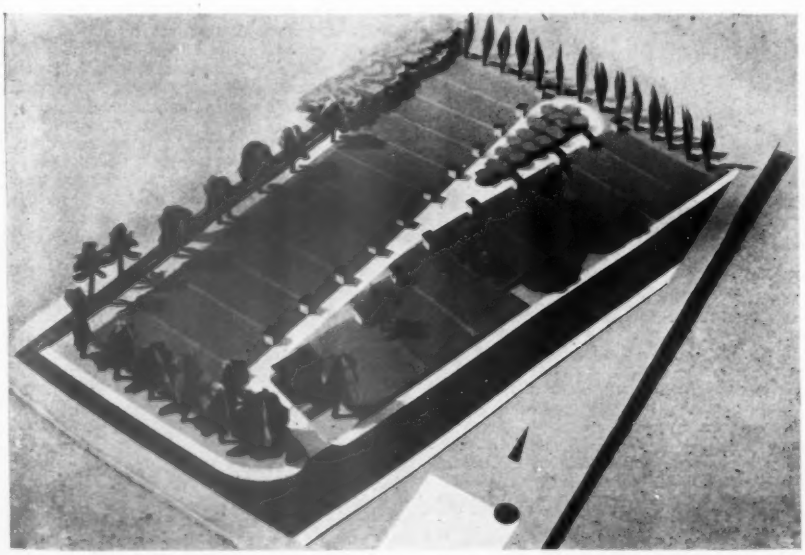
*

It is probable that the enthusiastic gardener (a year ago so contemptuous of his neighbour's chatter about compost and fertilizers, derris dust and turnip flea beetles, but now a feverish monomaniac) will want to continue to grow his own vegetables when peace comes, especially as his hours of leisure inevitably increase. But careful planning is needed if allotment areas are not to remain, as they mostly are at present, untidy jumbles of ill-assorted plots, pustulated with shoddy and haphazard little huts. Because of the insecurity of tenure, the present allotment holder is not inclined to spend more than the bare minimum to make his plot a pleasant looking unit in the landscape, and until the problem is tackled as a whole it is unlikely that allotments will become the permanent and attractive features they could be.

*

The AA School of Architecture has taken the initiative in this matter by setting the students a subject on allotment design, a kind of planning problem in miniature. A site in Barnet of about two acres was selected, and simple standardized huts for each holder were to be incorporated in the scheme with fruit trees, wind breaks, a reasonable roadway for transporting manure, and even a sort of community centre where wives might spend an evening, restfully watching their husbands toiling at the peculiar pleasure of double bastard trenching. The illustration here shows a model of one of the schemes designed by Mary Harper, a first year student.

ASTRAGAL



Model of an allotment lay-out by a student at the AA, to which Astragal refers above.

LETTERS

W. E. J. Budgen
K. Hajnal-Kónyi, M.I.Struct.E.
Guthlac Wilson
Nouveaux
Hilton Wright, A.R.I.B.A.

The Use of High Tensile Steel; Continuity in Construction

SIR,—To one who believes that "architecture" will only be satisfactory when "architects" and "engineers" are one and the same person it is pleasant to note the increasing attention which your journal is giving to engineering matters.

It is, however, I feel, particularly important that these matters should be accurately presented in a paper which is probably more read by persons with a limited amount of knowledge than by others who can rightly assess the truth behind controversial matters.

Thus Astragal, who has apparently been lunching with a high tensile steel salesman, does not give a fair picture of the relative advantages of high tensile and mild steel.

It is true that if such steel is stressed to 24,000 lb. per sq. inch in tension, then 3 sq. inches of it will replace 4 sq. inches of mild steel which may only be stressed to 18,000 lb. per sq. inch, but it must be remembered that this only applies to tension reinforcement. In many places, however, in a reinforced concrete structure the steel is in compression and the allowable stress, which depends on the surrounding concrete stress, will be the same for mild steel as high tensile steel. The percentage saving on the whole of the reinforcement will therefore be lower than that on the tensile reinforcement only.

Also high tensile steel is usually mild steel which has been "worked," generally in machines. This involves plant and labour and any considerable change-over in wartime would therefore be out of the question.

The above is, however, a small matter compared to Dr. Hajnal-Kónyi's articles on *Continuity in Construction*, where possibly owing to his lack of experience of British practice, there is a risk that readers may get a very wrong impression of British structural engineering practice.

Dealing first with mis-statements in his articles.

1. "The use of continuity in the design of structures is officially encouraged in the U.S.A. but is rare in this country."

Unless the author is considering only single storey steel-frame buildings this is not correct. Very few reinforced concrete buildings are designed without the use of "continuity."

2. "The London Building Act provides for a minimum cover of 2 in. of 1 : 2 : 4 concrete."

This is not correct—a minimum of 2 in. of fire-proofing material is required, but this need not be 1 : 2 : 4 concrete.

3. "The price of a structure per ton of steel is the same whether the manufacturer receives the design or has to supply it by himself."

This is not generally correct in whatever sense the word "price" is used.

More serious than the above is perhaps the confusion which may be caused by his unusual use of the words "framed structure."

Dr. Hajnal-Kónyi says that in "non-framed multi-storey buildings the beams are all considered as simply supported," whereas "in a framed structure the various members are so connected with each other that loading of the beams causes bending moments in the columns and vice versa."

Again later he says that "'framed' buildings in the proper technical sense of the term could not be designed until a recent date."

Even in the sense in which he uses the word "framed" this statement is incorrect, particularly as regards reinforced concrete, but what is more unfortunate is his misuse of the words "framed" or "non-framed" where he means "continuous" or "non-continuous" and the resulting confusion which may arise.

A "framed" building has a clear meaning in English practice and building act law and is a building in which the loads are transmitted to the foundations by a skeleton framework of beams and columns of steel or reinforced concrete. (As to whether such beams and columns are "continuous," i.e. rigidly connected together is a different matter entirely.) Any attempt to use the words "framed" or "unframed" building in any other sense is therefore most unfortunate and can only cause confusion, particularly when discussing the resistance of buildings to air raid damage since the literature of this subject sharply divides "framed" from "non-framed" buildings.

There are of course many other matters where Dr. Hajnal-Kónyi's opinions stated by him as if matters of fact could be seriously challenged.

I will content myself with one final point. Dr. Hajnal-Kónyi gives a list of people who have opposed the use of continuous structures. In this list he includes consulting engineers. The only support of this statement he gives is to illustrate a "continuous structure" designed by a consulting engineer!

I suggest that Dr. Hajnal-Kónyi should study the British literature of the subject, such as Dr. Faber's writings on the design of reinforced concrete columns, and he will find that for years British consulting engineers have been not only pressing the advantage of continuous structures but pointing out that however they may be designed, most "framed" structures do tend to behave as "continuous" structures.

Wembley. W. E. J. BUDGEN

SIR,—May I be allowed to answer Mr. Budgen's letter also on Astragal's behalf.

(A) *High tensile steel versus mild steel**

1. The proper ratio between mild steel and high tensile steel of a quality available on the British market is not 4 sq. in. of mild steel replaced by 3 sq. in. of high tensile steel, but 3 sq. in. of mild steel replaced by 2 sq. in. of high tensile steel. This is a saving of one-third of the weight of mild steel. I am not a salesman of high tensile steel, but I have conducted elaborate tests during the past sixteen months with this material. These tests have proved that the ratio 3 : 2 is correct and on the safe side. The results of my investigations will be published in *The Structural Engineer*.

2. Apart from columns, which contain a comparatively small percentage of the total reinforcement in a reinforced concrete building, and do not occur at all in many cases where reinforced concrete is used, the bulk of the steel is used in tension and not in compression, at least in a properly designed structure. The basic idea of reinforced concrete is that in members subjected to bending tensile stresses should be taken by steel, compressive stresses by concrete. Most of the steel placed on the compression side of beams and slabs in accordance with present regulations is entirely wasted and in no way increases the strength of the structure. This fact is recognized now by a great number of engineers and ample literature could be quoted. The conclusion to be drawn is that the regulations should be altered and the ineffective use of steel in compression avoided.

It is difficult to see the logic of the argument that, because steel is used in compression in many places, the saving which could be achieved by substituting high tensile steel for mild steel in tension is of less importance.

3. The steel referred to under (1) is produced from mild steel by work-hardening. Naturally, this requires plant and labour.

It follows from (1) that by using 2 tons of high tensile steel, 1 ton of mild steel can be saved. The labour required for work-hardening 2 tons of mild steel is a small fraction of the labour necessary for the production of 1 ton of mild steel, and the coal equivalent of the electricity used in this process is a negligible fraction of the coal necessary for the production of 1 ton of mild steel. The importance of this fact need not be emphasized in these days.

4. No "considerable change over" is required since there are already a number of factories in the country manufacturing work-hardened steel and their capacity could easily be increased by further machines. These machines are extremely simple. The saving, as explained under (3), would justify a much greater "change over" than the instalment of a few simple machines.

I respectfully suggest that Mr. Budgen should visit an iron ore and a coal mine, an iron and steel work from the blast-furnace to the rolling mill, and then in turn a factory producing work-hardened steel from mild steel.

(B) *Mis-statements in my articles*

The following numbers correspond to those in Mr. Budgen's letter.

1. It is clear from my reference to item No. 1030 of the *Information Centre*, which has been omitted in Mr. Budgen's quotation, from all my examples and from the following quotation (page 23) that my aim was to deal with continuity in *steel* structures.

"It need hardly be pointed out that reinforced concrete buildings are automatically framed, although much can be done in the arrangement of the reinforcement to increase their resistance against lateral forces if proper framing is aimed at in the design and continuity between columns and beams is not, as in many cases, ignored."

Since reinforced concrete is continuous by its very nature, even if continuity is ignored in the design (see item No. 1159 of the *Information Centre*, ARCHITECTS' JOURNAL of June 10, 1943), I did not think that it was necessary to stress this point further, and that any of my readers could get the impression as if (due to "lack of experience of British structural engineering practice") I were of the opinion that, by a peculiar trick of nature, reinforced concrete structures in this country were not continuous. To achieve this, i.e. to destroy the continuity in actual fact, special provisions would have to be made.*

Since my whole article refers to steel, Mr. Budgen's last remark in which he suggests that I should study Dr. Faber's writings on the design of reinforced concrete columns, is void of meaning.

As far as multi-storey steel structures are concerned, I do not understand Mr. Budgen's allegation that the statement quoted from my article is not correct. I think that the example given in Fig. 9 on page 24 is sufficient evidence for my statement.

2. The following is a quotation from "London Building Act, 1930. Code of Practice for the Use of Structural Steel and Other Materials in Buildings" (in force as from February 16, 1932). "Design. Encasing of steelwork for buildings," 12 (*c*):

"Of the above casings at least 2 in. of thickness in immediate contact with pillars and beams where built into external and party walls and 1 in. in immediate contact with all other pillars and beams shall be of *1 : 2 : 4 cement concrete* properly reinforced with steel wire lattice mesh or other reinforcement of not less than 2 in. square mesh or more than 6 in. square mesh and providing the equivalent of 16 S.W.G. wires at 6 in. square mesh." (Italics are mine.)

3. This is my personal experience, and I am glad if it is "not generally correct."

(C) *Confusion caused by the unusual use of the words "framed structure"*

With regard to reinforced concrete I have dealt with this question under B1.

I have made it quite clear (page 23) that I use the term "framed" in the sense of a "rigid frame."

I have to leave it to the judgment of my readers whether I have caused confusion in this respect.

(D) *Consulting engineers and continuous structures*

On page 23 I mentioned that "some people have been obstructing the spreading of continuity." In the following sentence I divided the various parties concerned with continuity into two groups. It appears that Mr. Budgen considers these two groups as a list of those people who obstructed the use of continuity. This is obviously not the meaning of the second sentence, since it does not relate to "some people" but to everybody concerned with continuity.

The discussion of the function of consulting engineers on page 26 can leave no doubt about the importance of their work in connection with continuity. The contradiction which Mr. Budgen believes to have found in my article is entirely misconstrued.

Finally, I have to refer to the first paragraph of his letter. I do not belong to those who believe that "architecture" will only be satisfactory when "architects" and "engineers" are one and the same person, which in view of the trend of specialization (structure, heating, lighting, etc.), is beyond the capacity of human faculties, but I believe in the closest possible co-operation between architects and engineers of the various professions. It depends on the particular problem in each case which of them should lead the team.

London K. HAJNAL-KÓNYI

Standard of Wartime Building

SIR,—I have read your review of *The Standard of Wartime Building*, contained in your issue of July 8, 1943, and think that it is most desirable for me to clear up what is, apparently, a misunderstanding.

The prohibition on the use of high tensile steel was not intended to refer to steel, the yield point of which is raised by drawing, twisting or similar processes. The restriction was intended to refer solely to steel which is high tensile by virtue of its composition, and which requires scarce materials in manufacture. As you quite rightly point out, most

*See also the letter on "Standard of Wartime Building" on this page.—ED.

*As an example of a building where continuity between columns and beams has been destroyed, I mention the foundations of the New Earl's Court Exhibition Building (see "Concrete and Constructional Engineering," January, 1937, pp. 34, 35). The same example also illustrates my statement under A2 in this letter regarding waste of steel in compression.

of the fabric reinforcements manufactured are of high tensile steel in the sense that they are made from hard-drawn or twisted steel and there is certainly no intention that this type of material should be prohibited.

I am glad that you have drawn attention to this point and will take the opportunity of inserting an appropriate amendment in the next edition of the Standard, but in the meantime it would perhaps be doing a public service if you would make the position clear in the next issue of your journal.

GUTHLAC WILSON,
London Director of Constructional Design, Ministry of Works.

Concrete Floors

SIR,—Mr. W. H. Parry can find only one objection to the concrete floor—that of morning damp. Is it not possible to obviate this with the application of water-proof solution? Chilliness can easily be countered by the use of cork insulation, with either wood or lino finish. Cork laid before wood makes an excellent floor. I think the "dungeon" argument of the Bakewell RDC to be due to prejudice.

NOUVEAUX.

An Open Letter to Mr. Coppock

SIR,—During recent months you have on numerous occasions made very strong attacks on those who have been preparing schemes for prefabricated or mass-produced houses. From one in your position such criticism must be taken seriously as it may possibly be seen as a forecast of the feelings of that important body of which you are now the leader. Failure by those you criticise to answer your attacks might imply on their part inability to do so. If I understand your arguments aright, they consist of these three:

1. That the schemes are inspired by the profit motive and are being produced by interested bodies or big business.
2. That if these were to be used on any considerable scale the amount of building labour employed per house would be reduced and their use would therefore be contrary to the interests of the building workers.
3. That a lowering of structural standards (and also possibly amenities) would result.

In the case of the first objection, I would ask you where do you expect schemes of a novel and experimental nature to appear in a capitalist country if not from those who expect to make a profit from them? The very fact that big business is interested is encouraging, as it means that there must be some possibility of the schemes materializing. Do you refuse to consider schemes for improving the workers' housing because the devil advocates them for his own good?

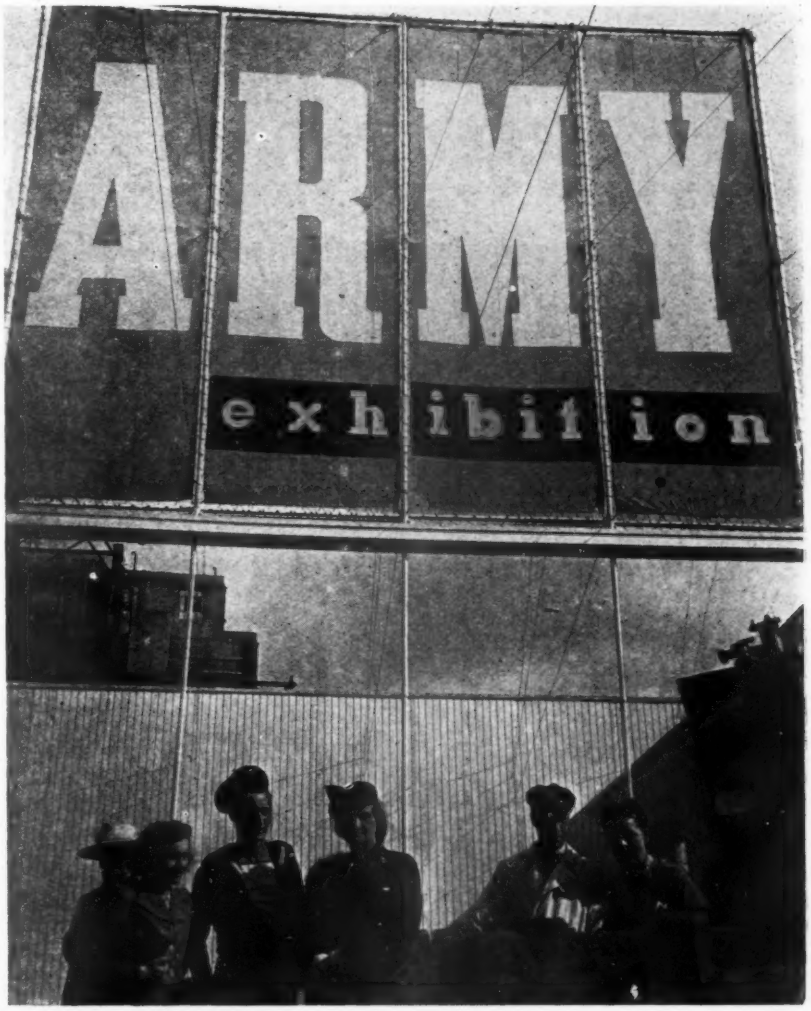
The second objection arises surely from an out-of-date conception of your duty to your fellow workers, and is a hangover from the pre-war days with the dread of unemployment which forced the workers to look with suspicion on anything that would increase the productivity of their labour. It is up to you and our other Labour leaders not to sabotage such efforts, but to see that the benefits of these improvements accrue to the community generally and not alone to the employers.

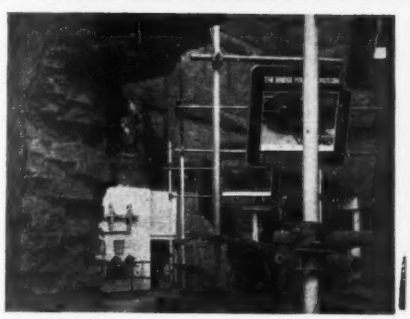
If the third objection is to be upheld and if it is based on anything more solid than prejudice, it is clear that you must have evidence before you that is not yet available to those who are preparing the schemes. We have as yet to see the results of full-scale tests on most of them, and the MOH Committee which is studying this work has yet to make its report.

I would therefore very earnestly ask you before making further public statements on this important subject to consider whether you are acting in the interests of those who will want the houses and who, if present methods are to be used, will have little chance of getting them for many years after the war.

London. HILTON WRIGHT

ARMY EXHIBITION BY MOI





An exhibition is now on view at Messrs. John Lewis's bombed site in Oxford Street, London, called Army Exhibition—Equipping a Division. *It has been designed and produced by the Display and Exhibitions Division of the Ministry of Information, which is under the general direction of Misha Black. A number of architects and designers collaborated, including Frederick Gibberd, F.R.I.B.A., A.M.T.P.I. (Engineering Section); B. Katz and Peter Moro (Personnel Equipment and Signals Section); and F. H. K. Henrion (Conclusion). Top: the entrance feature facing Oxford Street, designed in collaboration with B. Katz. Above left: the main bridge in the Engineering Section, which was designed in collaboration with Frederick Gibberd. This section is divided into six parts: Crossing water; pumping water; demolition; mine detection and laying; construction; lighting. Each section has its own distinctive colour, and the designer has allowed the equipment itself to tell the story with as little expenditure as possible on display cases and other devices. Above right: the wall paintings in the Concluding Section, which was designed in collaboration with F. H. K. Henrion. The exhibition will remain open until September 4.*

The stir created by the BINC Congress, held in Central Hall, Westminster, on July 21 and 22 is in no way out of scale with its importance. As the author emphasizes in the article below, the welfare of the whole community depends upon the efficiency of the building industry. The need for its reorganization is evident, but the purpose for which it is to reorganize must remain unknown until the Government makes some statement on post-war policy. If this delay continues a stand-still period may have to be enforced at the end of the war in which to solve the problems of the change-over from war to peace production. "Can the Government keep the situation in control?" asks the author.

BINC CONGRESS

[*By AILEEN TATTON-BROWN, A.R.I.B.A.*]

The Building Congress recently organized by BINC has done useful work if it has served to focus public attention on the chaotic state of the industry and on its unreadiness for the great task that lies ahead.

No one present disputed the fact that the signing of an armistice, which Mussolini's fall has brought closer yet, will give rise to an urgent demand for housing. The Minister of Health announced that it would be necessary to provide between 3 and 4 million houses in the first ten years of peace. Mr. Wood, F.R.I.B.A. (late housing commissioner for the Midlands, 1919-1922), pointed out that this would mean an average speed of building at three times the speed we have so far achieved in periods of maximum output. And speakers without number stressed that the public has grown to expect a standard of construction and equipment much higher than that which they used to accept before the war. Mr. McCorquodale (Joint Parliamentary Secretary to the Minister of Labour) completed the statement of the problem when he warned employers that they could not expect a 100 per cent. return to the industry of building operatives conscripted into the Forces. Over and above casualties there were bound to be a considerable number of men who would prefer to remain in other types of employment and would never return.

BINC seems aware that some organization is necessary. The conference indeed was held in the hopes of coaxing from the Government a declaration of policy which would make it possible for the industry to reorganize *itself* to meet demands that are likely to be made on it and so escape from the discomforts of Government control.

From this point of view the conference was a failure. The Government was represented at it by no less than seven speakers—one to open each session. They included a representative from every ministry likely to be directly concerned with reconstruction, except the Ministry of Transport, the Ministry of Agriculture and the Board of Trade—the three most important some might think. Speakers were Lord Portal, Mr. Ernest Brown, Mr. Attlee, Mr. Morrison, Mr. McCorquodale, Mr. George Hicks and Sir William Jowitt, the Minister without portfolio. Between them they gave the industry nothing to go on. No answer was given to the different questions raised by private land ownership; no attempt made to formulate criteria of good planning; no sketch given of the machinery by which they might be enforced. And so the word reconstruction continues as before to have no definite meaning.

This does not mean that the Government speakers between them said nothing. On the contrary, two speeches, those of Mr. McCorquodale and Mr. George Hicks, said a very great deal, but it was not what the majority of those present were expecting or hoping to hear. Mr. McCorquodale said that control over labour was certain to continue for two or three years at least after the war. He went further. He suggested to his listeners that instruments of control such as the Essential Work Order, the Restriction of Engagement Order, the Restriction of Transfer Order and the minister's power to direct, which had been found absolutely indispensable to the carrying out of the war building programme might be equally necessary for reconstruction. Mr. Hicks's speech was rather in the same vein. He told the conference that control would continue to whatever extent might be necessary to secure good quality, reasonable costs and satisfactory working conditions. In reply to BINC's demand for a lead, he said the next move lay with the industry; it was up to the industry now to organize itself for no government would venture on such an undertaking. But the majority of his audience, who had been hoping for some abatement of control, *said* that he told them nothing. and professed themselves very disappointed by the negative attitude of the Government.

Two questions arise in this connection. The first is supposing the Government had given a clear indication of policy, would the industry now be in a position to reorganize itself? The building industry is the second largest industry we have and possibly the most complex. The welfare of every man, woman and child in the country depends on its efficiency as directly as it used to depend on the prosperity of agriculture in the days when we were still obliged to feed ourselves. Outside the industry proper are other industries supplying it with raw materials, tools and components. Its ramifications extend in every direction and its reorganization is bound to have a profound effect on our whole economic system. How can an industry which is so little self-contained hope to reorganize itself? To expect it to do so seems to fail to appreciate the key position of the industry and the drastic reorganization required of it. And even if it could reorganize itself, how can it hope to do so without knowing from the Government what it has got to organize *for*?

The second question is: "If the industry cannot re-organize to build a new Britain without some assistance from the Government, what does Mr. Hicks mean when he says the next move is with the industry? Does not he mean perhaps that the time has come for BINC to set up the representative organization that has been talked about for so long, first to discuss, as far as possible in advance, changes that need to be made in building methods and the structure of the industry and later to negotiate with the Ministry of Works on questions arising in connection with the execution of a programme of planned reconstruction, as and when the Government is in a position to frame one?

The present position is that the material manufacturers, the distributors and the operatives are each organized as a whole, but the professions are represented by a confusing variety of institutes and associations in which employers are said to be represented by no less than sixty-seven different bodies. It is scarcely surprising that the many speakers at the conference nearly all represented a different point of view. The creation of an organization capable of speaking for the industry as a whole surely is the next move. Unfortunately in the absence of a general reconstruction policy no one knows to what extent the Government is backing MOW. The industry can still hope that organization may ultimately prove to be unnecessary.

Forget for a moment this ball game between ministry and industry and consider the man in the street. The impression from the conference is that reconstruction, apart from the repair of war damage, is still five or six years ahead of us. The attitude of the Government appears to be that there will be plenty of time to thrash out controversial issues, set up machinery, and prepare drawings between the signing of an armistice and the time when it will be possible to start building again. The basis of this policy appears to be Mr. McCorquodale's statement that even after the release of men from the Forces the labour available will be sufficient only to repair war damage and make up arrears of maintenance which will be given priority and take at least two years to complete.

If this stand-still policy can be enforced there is much to be said for it. Reconstruction, like rearmament, raises many issues which cannot be solved in advance, and the change-over from war to peace may well take as long as the opposite process. But there is this difference between them. The days of privateering are over. There was little chance in '39 of individuals getting ahead of the Government. By contrast every man still feels capable of engaging his own builder and getting himself a house—if only the Government will let him; and builders are equally confident of being able to deliver the goods—aided, perhaps, by a small subsidy. Can the Government keep the situation in control? The Minister of Health is already getting out of hand.

060

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

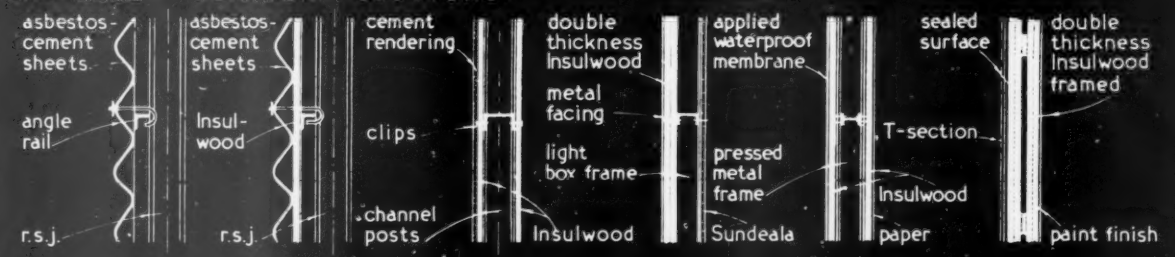
CONSTRUCTION AND COMPARATIVE EFFICIENCY OF INSULWOOD THERMALLY INSULATED WALLING

(for details of fixings and finishings to Insulwood, see later Information Sheets of this series).

TIMBER : VERTICAL SECTIONS.

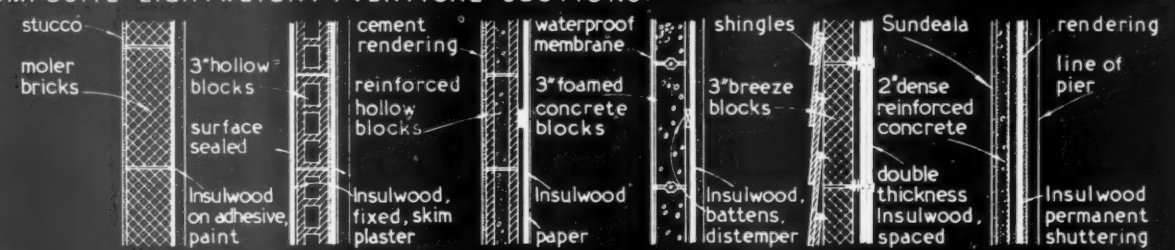
THERMAL TRANSMISSION B.Th.U./Sq.Ft.	0.35	0.20	0.13	0.16	0.15	0.20
HEAT LOSS B.Th.U. 1,000 sq.ft./hr. 30° temp.diff.	10,500	6,000	3,900	4,800	4,500	6,000

LIGHT STEEL : VERTICAL SECTIONS.



THERMAL TRANSMISSION B.Th.U./Sq.Ft.	1.10	0.30	0.21	0.19	0.21	0.15
HEAT LOSS B.Th.U. 1,000 sq.ft./hr. 30° temp.diff.	33,000	9,000	6,300	5,700	6,300	4,500

COMPOSITE LIGHTWEIGHT : VERTICAL SECTIONS.



THERMAL TRANSMISSION B.Th.U./Sq.Ft.	0.11	0.22	0.26	0.23	0.18	0.35
HEAT LOSS B.Th.U. 1,000 sq.ft./hr. 30° temp.diff.	3,300	6,600	7,800	6,900	5,400	10,500

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INFORMATION SHEET : FIBRE BUILDING BOARDS 7 : THERMALLY INSULATED WALLS (A)

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THE ARCHITECT'S JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET
• 904 •

BUILDING BOARDS
No. 7

Subject : Thermal Insulation ; Walls (A).

General :

This Sheet is the second of the group giving typical comparative thermal transmission values for various forms of floor, wall and roof construction, and deals with insulated walls, using ½ in. Insulwood.

Thermal Transmission Values :

The thermal transmission values shown are based on assumed coefficients which have been adhered to throughout, and include surface resistances. The figures represent the calculated thermal transmission of the structure for IB.Th.U./1 sq. ft./1 hr./°F., and heat loss per 1,000 sq. ft. over 1 hour, for the specified temperature difference.

In calculating values, allowances have not been made for variations in moisture content, etc., which would occur in actual practice due to aspect, climatic conditions, etc.

Insulwood :

This board belongs to the low-density range, and has a thermal conductivity of 0.36 B.Th.U. per sq. ft. per hour for 1 in. thickness and for each degree F. difference in air temperatures.

The waterproofing process undergone by the board during manufacture increases its efficiency, and ensure both a dry medium and the rejection of any absorption of atmospheric moisture.

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

Sheets ½ in. thick are used in the constructions shown. Sizes, weight and other physical properties are given in previous Sheets of this series.

Application :

Concrete or screeded surfaces should be thoroughly clean and dry, mopped with hot asphalte or pitch, and the insulwood firmly embedded while the mopping is hot. Two or more layers of insulation may be applied in a similar manner, well brushed before laying.

Waterproof felts and built-up roofings should be applied according to makers' instructions.

Previous Sheets :

Previous Sheets of this series on wallboards are Nos. 893, 895, 896, 898, 900 and 902.

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PHYSICAL PLANNING

1

index

Above is the framework of the physical planning series. It represents an eight week period, and, after the first three weeks, it will move down one rung each week. Thus, after the first three numbers, the next six rungs in the framework will always be visible with the last two.

This is the first number of a new section of the JOURNAL devoted to Physical Planning. There is an urgent need that the matter should be brought into clearer focus. The large quantities of literature which are continually being produced make it more rather than less difficult for Architects to see the problems of physical planning in relation to one another or to their own job. But by linking the various aspects of the subject to a general framework, the JOURNAL hopes to assist in formulating a clearer conception of:

1. The background to physical planning—the social, political and economic factors which directly influence the course of physical planning and underlie the main assumptions upon which physical plans are based. The need for clearer definition of these factors has been made manifest by the shortcomings of recent attempts at physical planning which lack realism because of the broad assumptions the planners are forced to make.

2. The most urgent problems confronting physical planners—ownership of land, local government, training the planners, organisation of the building industry, education and publicity. Special attention will be paid to defining the scope of the physical planner and the type of training he should have, for until these questions are agreed upon, the confusion which exists at present concerning the part of the professions in physical planning will continue to confound their members.

3. The job to be done—a general survey of the field and the point to which the various branches of research have advanced. It is necessary for the specialists working in one field to understand and keep in touch with work done in another and to know exactly how far they can call upon other specialists to assist them with the work they have in hand. It is only on such a basis that the foundation for successful co-operative working can be laid.

4. The relations between the Government, the Physical Planning Experts and the People—in Physical Planning No. 5 we shall commence a regular feature entitled Current Events, in which we shall present news of significance to physical planning under the headings the Government, the Experts and the People; we hope that this will show the growth between these three bodies of a collaboration upon which the future success of democratic planning will so much depend.

The British political tradition of evolution and reform presents a unique opportunity for evolving a new system of social and physical planning. It may well be a venture the success of which will show the way out of the slavery into which men have fallen elsewhere in their attempt to organise their social and physical environment. It is with a hope that this opportunity will be fully realized and a desire to assist in marshalling the forces and outlining an objective that we start this series.

In this article Astragal starts a journey in the fourth dimension. He has freed what J. W. Dunne might call his 'observer now,' and will survey ***PHYSICAL PLANNING*** *events from the 1946 viewpoint, starting in 1909. In Past Definite 1909–1929 and 1930–1943 he will show the evolution, which is accelerated by the Second World War, of a national policy for physical planning. In Future Simple and Future Perfect he will show us the future which could be ours if we realize the possibilities of the present and translate them through imagination and initiative into reality.* ★*This star indicates events of significance in Physical Planning.*

PHYSICAL PLANNING No. 1, PAST DEFINITE 1909-29
PHYSICAL PLANNING No. 2, PAST DEFINITE 1930-43
PHYSICAL PLANNING No. 3, FUTURE SIMPLE 1943-44
PHYSICAL PLANNING No. 4, FUTURE PERFECT 1945-46

PAST DEFINITE 1909-29

1909

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Housing, Town Planning, etc. Bill, 1909. Local authorities permitted to prepare limited Town Planning schemes.

The Government having made up its mind about the gravity of Home Affairs allowed its attention to be diverted neither by the deposition of Abdul Hamid nor by Mr. Asquith's narrow escape into No. 10 from three over - excited suffragettes.

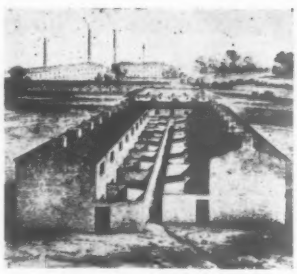
It announced that the King's meeting with King Alfonso at San Sebastian, which had upset the Germans, had no political significance, and turned its attention to unemployment and housing. Mr. Winston Churchill explained from many platforms the benefits of the proposed systems of labour exchanges and unemployment insurance, for which some of the preliminary research had been done by an unusually clever young man called Beveridge. And the Government felt confident that these two measures would prove the cure for an unemployment rate then reckoned at 7 per cent.

In April, time was found to deal with the second great social problem of lack of working-class housing. Mr. John Burns, in moving the second reading of the Housing, Town Planning, etc., Bill, reminded the House that local authorities had failed to do their duty in this matter, and therefore the Government was reluctantly compelled to change a voluntary duty into an obligation. In order to assist authorities in this duty of supplying new houses as needed for the lower classes, the later sections of the Bill contained an innovation. Local authorities would be allowed to prepare in advance a scheme for the orderly development of any area of land in process of being built over, or any which could be shown to be very likely to be built over in the near future. Thus it would be possible to ensure the proper layout of streets, the reservation of fitting space for buildings of public or commercial importance, and the decency and sanitary convenience of the homes of those who toiled.

The proposals had been designed with care for the sanctity of private property. Full compensation would be paid to those whose property would be diminished in value by use of town planning powers.

Over-excited policemen.

John Burns.



A national burden.

But it might be and doubtless in most cases would so be that the value of property was enhanced rather than lowered through the development of an area which had been planned beforehand as a unity. In that event it was right that the property owner should benefit, and any such betterment —as such an increase in value through execution of public works was called in law—would be shared equally between owner and local authority. All local authorities would possess these powers except County Councils, which could have no need of them.

The Bill was received by the House with a measure of approbation greater than some of its sponsors had hoped for, but well suited to the gravity of the problem it was designed to solve. Some members professed to discern the thin end of an alarming wedge in the power to exclude compensation in matters of space about and height of buildings, and the number which could be built upon a given area of ground, but the majority were satisfied that this slight extension of existing regulations was justified on sanitary grounds. Mr. Hicks-Beach raised an objection peculiarly his own : in his view housing the lower classes was a national burden which should be borne by the Exchequer, and not by local rates, since in the latter event a local authority with most overcrowding might be least able to remedy it. But Members rightly thought that Mr. Hicks-Beach was going much too far, and approved the second reading by 128 votes to 20.

During the following month Members and responsible private persons were gratified to see that alarmism about German intentions was recoiling on those who had done most to create it. Lord Northcliffe, in a letter from Berlin to his sensational half-penny *The Daily Mail*, confessed that influential Germans had become convinced that this country was almost exclusively "peopled by nervous degenerates."

★ ★

1914-1918 PLANNING FOR WAR

★ ★

1919

Its worst enemies had begun to forgive the Government its "coupon" majority by the time it could give attention to post-war housing, and, as a necessary adjunct, town planning. National and international questions, of ending the war and beginning peace, pressed crushingly on the Cabinet. It seemed as though the end of the necessary unanimity of war had not only permitted the nervous relief of plain speaking, but had failed to lessen war-time inclination to make the most of a luxury while it was going. The police strike was just over ; delay and acceleration, twin perils of demobilization, had been stressed by a march to Whitehall by the R.A.S.C. which had not been approved by the C.O. ; Sir Edward Carson deplored that persons on all sides were fast losing any sense of the broader interests of the nation, and had to suffer several unfriendly references to his own previous activities ; Mr. J. R. Clynes used his considerable powers of imagery and exhortation to

alias Lenin.

★

Housing, Town Planning Bill, 1919. Local authorities enabled to join together for planning considerable areas of land.

remind Mr. Lloyd George that labour must be employed; Mr. Moore Brabazon cried to heedless ears of the importance of post-war civil aviation. And at the other end of Europe, Generals Denikin and Yudenitch made slow headway despite Allied aid against ragged bands under the leadership of an able, fanatical and, it was said, most unscrupulous man called Vladimir Ilyitch Ulianoff—alias Lenin, for whom British workers nevertheless felt some inexplicable and indeed alarming sympathy.

It was therefore greatly to the Government's credit that within six months of the Armistice and one month from the founding of the League of Nations, it moved the second reading of the Housing, Town Planning Bill [1919]. The facts were grim. 70,000 houses were unfit for habitation, 300,000 more were seriously defective, it was calculated that 3 million people were overcrowded, and the Army was still, in large measure, under arms. Nor was the Government satisfied with the use which had been made of the 1909 town-planning powers: only one-half of one per cent. of the area of England and Wales was covered by schemes or resolutions to plan.

Such being the facts not even the Government's speedy action could banish a measurable acidity from the debate, in which a certain slogan about houses used by Government candidates in the recent election was recollected with tasteless frequency. Sir Tudor Walters asked for labour-saving houses, and said that the nation's women would not consent to return to squalor from their magnificent war work, and the Opposition asked for a million houses, and sat down in possible thankfulness that they were not slated to provide them.

Dr. Addison did not allow himself to be diverted from a careful statement of the Government's housing plans, and went on to describe how building development would be guided in a manner commensurate with its probable scale. The Bill enabled local authorities, other than County Councils, to join together in the planning of considerable areas of land. The progressiveness of this measure, which was in time to grow into a remarkable system of co-operative work by local authorities, did not receive its proper share of public attention and recognition.

Armistice 1919.

The man in the street of 1919 wanted to be out of uniform, to have a holiday and obtain a job, and it must be admitted that he tended to harp on what he wanted. Housing—even for those who had a house—tended to rival the New Morality in the Press, and there was also Russia—and Ireland. By September the Allies had had enough of Russia, and announced the end of intervention. Ireland still remained. By the end of the year the man in the street was for the most part out of uniform, and had had his holiday and the post-war boom was on. He had not got his million houses, but he had got some—about 500. Press comment suggested that this output in 14 months could be held to be unsatisfactory, and the more sensational newspapers published some very objectionable material

★

Housing (Additional Powers) Act 1919. Financial aid for local authorities to buy land for town planning and establishing garden cities.

about bricklayers. It is, therefore, the more praiseworthy that progress towards skilful guidance of land use still went on. In December an Act was passed which included a section to help local authorities and certain other bodies to buy land for town planning and for establishing garden cities.

★ ★

1921

Unemployment around 800,000.

DIAGRAM OF TOWN PLAN SHOWING ZONES

As the year went on housing and unemployment were still the main problems of post-war reconstruction. Unemployment, hovering round 800,000 in insured industries, and in reality larger, would, it was still hoped, grow less as international trade fell back into pre-war channels; but the slump of the previous year had unsettled the country's nerves. To some extent it was claimed that the housing shortage could similarly be regarded as a temporary problem. The public, however, showed no inclination to accept this, and when by April—2½ years after the Armistice—it was disclosed that only 33,000 new houses had been built, feeling was strong, and as not much remained to be said about bricklayers the whole building industry became the object of Press displeasure.

With the energies of local authorities thus concentrated upon housing, it proved impossible to consider as fully as would have been desired the relationship between sites for new housing and all other aspects of planning. It was realized by the Government as well as the more intelligent sections of the public, that providing houses only was not a satisfactory solution even to the "housing" problem: the houses were only part of a complex requirement including shops and schools, places of public resort, open spaces and transport. But the low rate of production of houses and consequent outcry prevented rational handling of the work; housing schemes were dotted arbitrarily around the circumferences of urban areas, and all that could be done by the Government was to approve loans for the establishment of garden cities and other similar self-contained developments. Welwyn Garden City was founded that year, but otherwise these powers were almost entirely neglected.

★ ★

1923

Our foremost psycho-historian has laid it down* that by 1923 public opinion had come to accept as inevitable certain conditions which four years earlier would have been entirely unacceptable, and the chapters showing the stages by which this acceptance came about are among the most impressive in a remarkable work. In view of achievements after the Second World War, this acceptance of an unemployment rate of a million and a housing output of not much more than 250,000 in 4½ years seems the more remarkable; but it certainly occurred. Public interest turned away from these two hard facts, and sought distraction. A plenitude was

* *A Psycho-History of Britain, 1919—1949.* By Professor Tom Harrisson, O.M., LL.D., M.A., etc. Oxford University Press, 1952. Price $10.

Mr. and Mrs. Stanley Baldwin.

★

Housing Act, 1923. First model clauses to help local authorities prepare planning schemes.

gay twenties.

available. The French armies invaded the Ruhr and the American Army withdrew from Germany. The inner tomb of an Egyptian King called Tutankhamen was opened at Luxor, and for several months journalists who lacked Egyptological patter could barely make ends meet. The Duke of York became engaged to Lady Elizabeth Bowes-Lyon. The Irish Civil War ended in a victory for Cosgrave. Mlle. Lenglen again won the Ladies' Singles at Wimbledon ; an earthquake wiped out half Tokio and nearly all Yokohama. Lord Curzon uttered his most famous *obiter dictum*, and Mr. Stanley Baldwin formed his first Government.

Progress in land use control, therefore, took place out of public view, but very real progress did take place. The Ministry of Health issued its first model clauses to help local authorities prepare planning schemes, and in the Housing Act, 1923, the Minister was given powers to authorize the preparation of a planning scheme for land of any kind in order to safeguard special attributes which it possessed. One can say that by 1923 the pattern and system of inter-war planning were almost fully formed. The formation of Advisory Joint Planning Committees increased rapidly as more and more planners and local authorities realized the futility of planning in small local compartments. The first of the Regional advisory schemes, that for the Doncaster coalfield, had been published in the previous year ; in 1923 the Deeside Report appeared, and year by year similar surveys were to follow.

It has become commonplace for students of planning—in a hurry to tackle the immense mass of data and technique which must be mastered for modern planning purposes—to dismiss published Reports of the inter-war period as little more than handsomely bound good intentions. In this they are wrong. The publication of each Report meant at the least that a number—often a considerable number—of the most intelligent people in each area had been convinced by, as it were, demonstrations on their own doorstep of the degree to which current planning powers were incapable of achieving the aims desired of them. Sixteen years of such demonstrations may have been the chief reason for the remarkable rate of planning achievement after the Second World War.

★ ★

1925

★

Town Planning Act, 1925. The first Act to be wholly concerned with the guidance of land use.

The Town Planning Act of 1925 was not a revolutionary measure. It is memorable only because it was the first to be wholly concerned with the guidance of land use, and nowadays that will be thought fame enough for any Act. By it previous legislation was summed up and set in order, and the job of planners as they struggled with the weary ring-holding compromises of those years was thereby a little lightened.

There was really no more to it than that ; and it passed unnoticed by a public which felt sad at the death of Queen Alexandra, pursed its lips at skirts which had almost, but not quite, reached an all-time high, and visited the second Wembley Exhibition. Some people also worried a little over articles about the trade situation by economists who, though they were as guarded over details as Sunday Press soothsayers, managed to be gloomy in general purport.

Wembley exhibition.

★ ★

1929

an all-time high.

By the end of the first decade of the Inter-war Armistice the man in the street had obtained his million new houses and some to spare. The Local Government Bill, introduced in January, was expected to assist industrial expansion by granting rating reliefs to industry, and also allowed County Councils to take part in planning. This latter power was followed by a rapid increase in Joint Town Planning Committees, and was to lead in the next decade to an increase of the area of land under some sort of town planning control, from one-seventh to three-quarters of England and Wales ; and was also to lead to the formation of executive Joint Committees to prepare statutory schemes.

Yet for the moment planning progress was set back by world events. Mr. Ramsay MacDonald formed his second Labour Government in August, just in time to catch the full blow of the American crash in which investors are calculated to have lost in the two months, September—November, about 8,000 million dollars. Ever since the appearance of that classic comedy, *The Fruit Machine*, in 1947, it has been difficult for the British public to take seriously Inter War Stock Exchange activities, but this one example may impress on the younger generation that livelihood and production were in fact at that time the subject of international gambling. Current Press comment suggested that no one found it funny. The American collapse was not improved by the British Hatry frauds, and not even the winning of the world's speed record by a British Schneider trophy seaplane could make the economic future seem benign.

Ramsay MacDonald.

★ ★

The first decade of the inter-war armistice ends with the Wall Street crash, skirts at an all-time-high and Ramsay MacDonald's second Labour Government. One seventh of England and Wales is under some sort of planning control, which although mainly restrictive, lays the basis for future planning on a national scale. The story of the increase of planning control which, by the end of the next decade, covers three-quarters of England and Wales is told in Past Definite 1930-1943 in the next issue. The JOURNAL is grateful for permission to reproduce Osbert Lancaster's fashion drawings.

RECORDING

THEATRE AT DENHAM

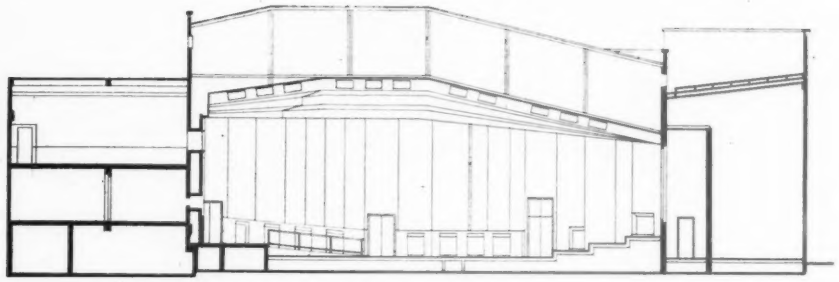
DESIGNED BY F. F. DOYLE, ARCHITECT, AND A. W. WATKINS, SOUND ENGINEER.

The Denham Studios suffered extensive damage through enemy action some time ago. Amongst the buildings destroyed was the recording theatre which, together with its monitor and projection rooms, formed an essential link in the production of pictures. The Government was, at that time, extensively engaged in making cinematograph films, not only for exhibition to the general public, but for instructional purposes and whilst there were other recording theatres, that at Denham was the only one of its size available. Messrs. Denham and Pinewood Studios, the owners, supported by the various Government Departments concerned, therefore decided to rebuild the theatre.

A recording theatre is not a theatre in the entertainment sense but is a vital and integral part of picture making and is really the nerve centre of the sound system. It is equipped for the recording of music, the general mixing of sound effects and the addition of the necessary commentaries to make final sound negatives. The science of sound recording advanced very considerably after the erection of the original theatre at Denham in 1935 and it was decided, when rebuilding, to take advantage of such new knowledge as had been acquired. All the latest data from Hollywood was obtained. Since knowledge of acoustics is still in a very elementary stage, the erection needed the closest co-operation between the sound engineer, the architect and the makers of acoustic materials.

The new theatre has been built within the original walls. It is roughly of cigar shape, floors, walls

RECORDING THEATRE, DENHAM



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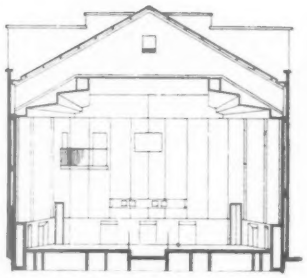

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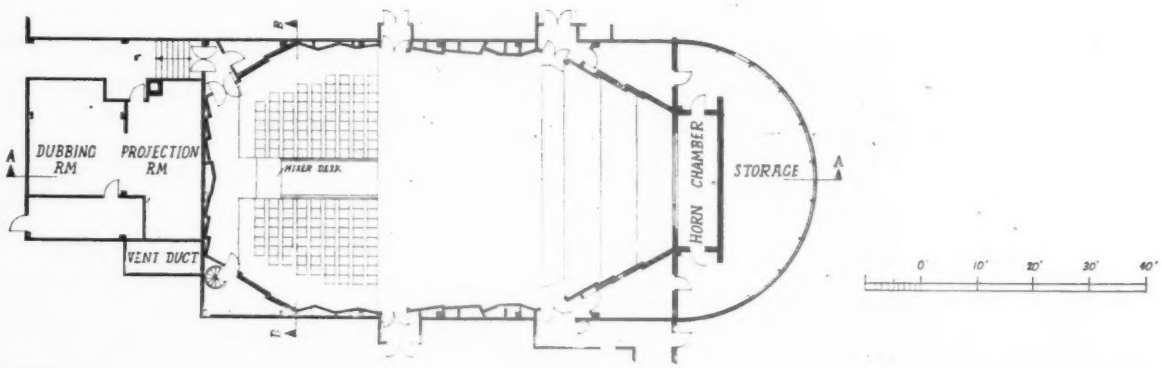


PLAN

and ceiling expanding from the projection box and narrowing towards the screen, the widest part being in the middle of the theatre. The floor is of concrete covered partly with carpet for sound absorption and partly with hard wood block for resonance. The walls are built of brick finished in part with Rok-wool covered with net and elsewhere with hard plaster. The ceiling is part hard plaster and part Acoustic-Celotex tiles. The allocation of all these materials in position and quantity for both absorption and resonance is an integral part of the design. The walls, floor and ceiling are uneven and in no case does this unevenness balance; here the designers were concerned solely with acoustics.

It has not yet been possible to test all the many uses to which a building of this type can be put but such tests as have been made have proved entirely satisfactory.

INFORMATION CENTRE

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

PHYSICAL PLANNING

1190 Tomorrow's Cities

BRITAIN'S CITIES TO-MORROW. *C. B. Purdom.* (*King, Littlewood and King*, 1942, 1*s.*). Ideas which must govern post-war civic planning.

1. A housing programme is required with entirely modern houses for the way of life that the people of to-morrow will follow, designed and sited for privacy in the home combined with communal living of a kind not yet enjoyed; family houses generous in size, centrally heated, with a common hot-water supply; a self-contained house and garden for each family, and flats for single persons and those without children.

2. Self-governing industrial corporations should be set up, including within them the entire working personnel and covering the building trade, the civil engineering industry and the building materials industry.

3. To reconstruct the industrial areas of cities on the trading estate principle would be of the greatest possible economic advantage, enabling ramshackle, inconvenient and slum factories and workshops to be avoided.

4. Scientific research, large central hospitals, specialized hospitals, specialized treatment, health clinics and welfare centres should be co-ordinated in a national system under medical guidance and control.

5. In education, towns and cities should freely co-operate, sharing their special advantages. The present system of private, municipal, county and public schools should be replaced by a public regional organization, forming part of a national system.

6. Facilities for the enjoyment of leisure should be organized by free associations and not left to private exploitation. These matters, treated as civic responsibilities, will affect the redesigning of cities, central areas specializing in such functions, according to the size of the city, with sub-centres in community units.

7. Rural districts should be combined with neighbouring urban authorities so that each town and city incorporates its own countryside.

8. New administrative bodies in each regional area should replace existing county councils and possess power over many matters. Local authorities as such should be pre-eminently town and city development bodies and housing authorities.

9. The neighbourhood or community unit should be the formative principle in town structure, comprising a population of about 5,000, probably not much less, and possibly more. Each should have a wide range of grouped public buildings, workshops and a small park. These units should be integrated to form the city.

1191 Urban Housing

THE PROBLEM OF URBAN HOUSING. *Paul S. Cadbury.* (*Article in Friends' Quarterly Examiner, Spring*, 1943; 2*s.*) A housing programme for Birmingham.

Taking Birmingham as the example we must:

Decide on a *local programme of priority* for house building.

Make a time table for the first ten years;

Decide on the *policy* to be adopted for the "redevelopment areas."

Prepare detailed drawings for *new housing schemes* in the undeveloped area of the city;

Prepare detailed drawings for the *most urgent re-development areas.*

Prepare detailed drawings for *multi-storey factory buildings* where space can be let to small-scale industrialists at present operating in slum factories.

Re-plan the traffic routes of the city so that these do not pass through the neighbourhood units into which residential areas of the future should be divided.

Prepare draft plans for a *new satellite town* or *detached suburb.*

Build 86,000 *houses in the ten years immediately after the war.*

STRUCTURE

1192 Prefabrication System

PREFABRICATION SYSTEM FOR ARCHITECTS. *Herman Herrey.* (*New Pencil Points, April*, 1943.) System based on standard module. Structural units identical whether in walls, ceilings or elsewhere. Simple standardized joints. Easy dismantling.

This system, designed by Konrad Wachsmann and Walter Gropius, is based on a three dimensional module, a unit of space which architects can freely combine in any type of building. The module is 3 ft. 4 in. in all dimensions. The size was chosen as the minimum convenient construction width for doors, windows, corridors and stairs; it is half the standard length of beds, considered to represent the controlling factor in planning bedrooms and living rooms. The panels, on which the construction is based, and all accessories are 10 ft. long, 3-times module for walls. Floor, ceiling and roof panels are available also in 3 ft. 4 in. and 6 ft. 8 in. length to permit variations in plans. The panels are wooden frames with surfacings for walls, doors or windows as the case may be. They are supplied complete with all fittings. Assembly is very simple as one standard joint is used for all connections. Metal clips are fitted to the panels in the factory. These are joined together and fixed with a wooden wedge which is driven in with a hammer, the only tool required. Since the edges of panels are chamfered at 45 degrees, four members must meet round an axis wherever joints occur. If only two or three panels meet, filler strips are used instead of the omitted panels. As panels and joints are identical, floors, ceilings and walls are interchangeable (see picture). In dismantling the process of joining is exactly reversed, beginning with the loosening of the last set of wedges tightened. All parts can be used again for building of the same or any other shape or plan, on the same or any other site.

1193 Moving Form Construction

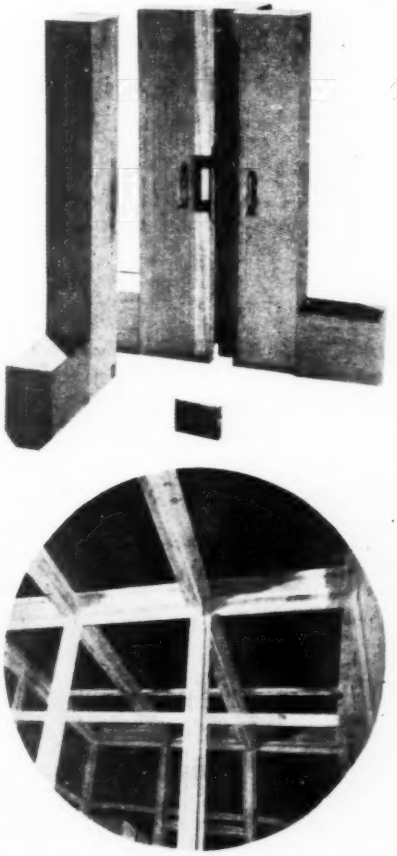
FUTURE CONSTRUCTION USING MOVING FORMS. *L. E. Hunter.* (*Civil Engineering, May and June*, 1943, *pp.* 105 *to* 107 *and* 126 *to* 129). Application of moving form construction in silos, plain buildings, with and without internal columns, plain buildings with set-backs to the upper portions, tanks.

Moving form construction requires less timber than fixed shuttering, and reduces the time necessary for the completion of a reinforced concrete structure. So far its application has been confined mainly to silos and tanks which are ideal for this method. It could, however, be used also in other types of building, if a somewhat simpler style of architecture were adopted than in the past. Ornate features must be reduced to the minimum, and be added later, either precast or in situ after completion of the structure.

The essentials to be observed in moving form construction are:—

1. All points of the shutter must move at the same rate vertically.
2. Adequate lateral support.
3. Wall thickness not less than 6 in.
4. Provisions for pipe fittings, boxes, recesses, etc., to be reduced to the minimum.
5. Alterations to the shutters during the moving form period, such as variations in wall or column dimensions to be avoided.
6. Construction to be continuous without break during the moving period.
7. Reinforcement to be simplified as far as possible.

A suitable minimum height of concreting is necessary to ensure that the time and expense saved in concreting is more than the extra



Top: Three panel frames assembled, fourth ready to slide into place. Above: A view of the framing in position. See item 1192.

time and cost necessary to construct the special shutters. Nothing less than 30 ft. should be considered.

Open structures with internal columns are extremely suitable for moving form construction. Adequate support can be achieved from the columns and all beams and floor slabs can be concreted after the moving form construction has passed upwards. It is essential that the beam widths remain constant for the different floors; the depths may vary. Reasonable stiffness should be provided for the shutters, so that lateral displacement is reduced to the minimum. Once a moving form shutter is fixed in position and concreting started, repairs and alterations to the shutters prove very expensive. Open structures without internal columns should have adequate internal bracing, whatever the width may be. If the top portion of a building is set back from the building line of the lower part, provision for the upper portion must be allowed when the shutters are designed and constructed. If the set back does not exceed 15 ft. in height, it is doubtful whether it is economical to have the shutters altered.

Sky-scrapers are suitable for construction by this method. With careful planning and supervision sky-scrapers of 300 ft. or even more can be built.

It is to be deplored that moving form construction is only applied by relatively few engineers and contractors in this country. It is thus at present in the hands of a few expert engineers and contractors, while unfortunately there is a tendency for the contractor who is ignorant of this method to leave it severely alone as being too open to financial loss.

To combat this lack of personal practical knowledge of the method, it should be possible for the consultants and contractors who have experience of the practical aspect of the subject to pool their resources and provide practical working knowledge on current contracts after the war. This would lead to a much wider adoption of the method in this country. Moving form construction is not a secret—it is a well-tried and expeditious method of concreting in suitable cases.

In conclusion, moving form construction gives an excellent finish to the concrete, the rubbing down occurring while the concrete is less than one day old, while there is a freedom from the unsightly horizontal joint marks that mar construction by ordinary methods.

SANITATION and Plumbing

1194 — *One-pipe System*

THE ONE-PIPE SYSTEM OF PLUMBING. *A. Longworth, F.I.O.P., F.R.San.I.* (*Lecture at School of Art, Manchester, May* 18, 1943. *Reported fully in Plumbing Trade Journal, June*, 1943). Brief historical background. Special care in lay-out. Venting of branch pipes. Metals for pipes and type of jointing material. Trapping and evaporation. Pipe sizes and falls. Syphonic W.Cs. Internal soil pipes.

This paper is a general survey of the principles applying to the one-pipe system.

A one-pipe system of a crude type was in use until the 1875 Public Health Act. Then came the two-pipe system with gradual improvements in arrangement and workmanship until these made a return to one-pipe system feasible. For this a close grouping of fittings is important.

Branch pipes must be ventilated, and care taken to avoid choking of vents by fouling. Loop-venting is advocated. All branch vents should be of lead or copper as they are subject to corrosion. The main vent stack should be of hard metal and should not be lead caulked owing to alternate conveyance of hot and cold wastes. Cement-sand joints are advocated. Also on account of corrosion the bottom of vent pipe should be continued downwards below the lowest waste branch and connected in direction of flow to the soil stack thus allowing rust to fall out.

Special attention must be paid to trapping. Results of tests for evaporation of various sizes of traps are given. The effect of surrounding temperature conditions is considerable.

Re-sealing traps are not self-cleansing, and soon become choked. Recommendations as to size of traps, pipe sizes and pipe falls are given. The use of syphonic W.C.s is advocated as they allow of smaller soil pipes. B.S.I. has been asked to co-operate with manufacturers to produce a satisfactory two-gallon syphonic W.C. and low level cistern.

The choice of method must depend on circumstances, which in some cases may favour combinations of one-pipe and two-pipe systems in the same building.

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.*

1195 — *Colouring Bricks*

Q *Four years ago I used sand-faced bricks for the base of a house here. The bricks selected from samples were a pleasant russet brown colour, but when supplied to the job, they were of a light red colour. When I objected to the manufacturers regarding the colour, they stated that this would deepen and become russet brown in a little time. As the house was urgently required I permitted the builder to proceed with the light coloured bricks, but I note with regret, that after four years, the bricks have not changed appreciably.*

Is there any chemical preparation which I could obtain and brush on to darken the colour without turning the bricks black?

A The only "chemical preparation" which we know of being used is a solution of sulphate of iron.

Two old-fashioned remedies were soot mixed with water and, alternatively, a solution of cow manure.

It is possible that the Building Research Station, Garston, Watford, Herts, has carried out experiments, and we suggest that you write to them direct.

1196 — *Concrete Floors*

Reference back to Q. 1168. This enquiry dealt with the question of roughening concrete floors. The Cement and Concrete Association has drawn our attention to the fact that no mention was made of bush hammering or of acid treatment, both of which processes remove the outer skin and leave the aggregate exposed. Space does not permit us to give full details of the processes involved.

Exposing aggregate is usually done for decoration or as a base for further treatment, and we had not looked upon it as a suitable treatment for floor surfaces subjected to wear. The enquirer stated, however, that the workmen wear rubber boots, and in view of this factor we agree that the Cement and Concrete Association are correct in reminding us of such treatment.

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.

RIBA

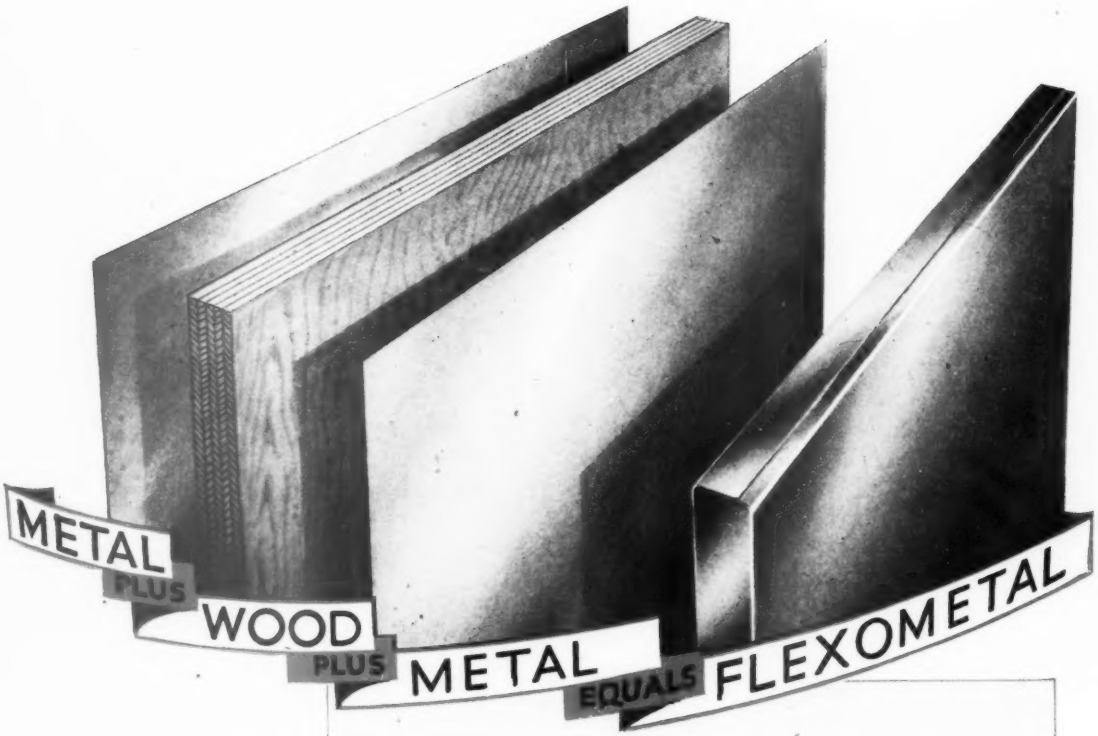
ASB Lecture

May 15, at 66, Portland Place. Lecture in a series arranged by the Architectural Science Board of the RIBA on *Lighting*: *Analysis*, by H. C. Weston, Investigator to the Industrial Health Research Board of the Medical Research Council. Chairman: Alister MacDonald, F.R.I.B.A. The lectures which followed on *Lighting Application* by P. V. Burnett and R. Ackerley will be published in subsequent issues.

H. C. Weston: The functions of vision have become much elaborated in man, and visual sense data provide a larger share of our everyday experience than those of all the other senses put together. The eye has become for us the pre-eminent organ of sense.

In the psychological sphere, these visual perceptions are also accompanied by or coloured with pleasant and unpleasant sensations, which are always more or less agreeable or disagreeable and never entirely neutral, and they play a greater part than many of us realize in determining our general feeling of wellbeing or otherwise.

All visual perceptions, however, arise solely from and vary with the radiation to which that little piece of the brain lying within the eyeball, namely the retina, is sensitive, and to which it is exposed. Thus, lighting has the essential function of actualizing what in its absence is no more than a potentiality for experiencing these enormously valuable visual perceptions, and of conditioning them. How well lighting discharges this function within our buildings depends upon design guided by our knowledge of the physiology and psycho-



Two sheets of metal and a board of Flexo Plywood are combined together to make a Flexometal panel. The metal skin is sealed and thus protects the plywood; it retains all the hygienic advantages of the metal, while the plywood contributes strength and stiffness.

Weight is saved, so is valuable space, and a hygienic, ledgeless, vermin-proof and fire-resisting partition is easily built up from panels supplied in the finished size and shape required.

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FLEXOMETAL

logy of seeing, just as other data of these two human sciences must form the basis for engineering heating and ventilation.

Health and comfort are relative terms, and the state of body and mind to which we apply them may be one to which they are only just appropriate or one the character of which is much more positive and unmistakable, which prompts us to use a qualifying adjective such as "good," "perfect," or even "radiant." We often hear people say that they are in "radiant health," and it is interesting to note that they are using a term which is very freely used in lighting, and a term which is borrowed from the language of lighting.

The borderline state is too uncertain and precarious a standard of health at which to aim, and in considering what general conditions of lighting are necessary in buildings we should have in mind the promotion of a high rather than a minimum standard of physical and mental wellbeing. Daylight, as we experience it out of doors, is the best form of lighting, and from its analysis the conditions desirable in buildings can be stated in broad terms.

The first is an ample amount of light, so that all the external objects within our immediate environment can be seen clearly and easily. This light comes from a whole hemisphere of sky, and thus equally illuminates the wider environment, the distant field of vision, and enables us to move from place to place without our eyes having to change their sensitivity by adaptation to very different levels of brightness. Moreover, this uniformity of illumination means that there are no extreme brightness contrasts presented to the eye. Natural contrasts seldom exceed a ratio of about 40 to 1, and patches of brightness greatly exceeding the prevailing average, as when the sun is seen directly or when its light is reflected to the eye from a highly polished surface, interfere with normal vision and cause discomfort.

So far as the amount of illumination is concerned, nature is lavish in day-time and caters for those whose light-need is greatest rather than for the average person. On the other hand, codes of illumination values for interior lighting practice are generally based on the requirements of the average person. I hope to show you later how widely individuals differ in their light-need; and where it is economically possible to follow nature's lead to some extent and provide higher values, a larger proportion of the occupants of buildings will be assured of adequate lighting.

Although day-light illumination out of doors varies considerably during the day and with the weather and the season, even in winter there is usually 500 ft.-candles or more for several hours a day, while in summer more than 1,000 ft.-candles should be available for eight or ten hours a day, with peak values in the sun rising as high as 10,000 ft.-candles. Visual efficiency may not reach its maximum below this peak illumination, but it does not improve greatly beyond about 1,000 ft.-candles. The winter value of 500 ft.-candles is also fairly characteristic of dull days in other seasons, and the interiors of buildings will receive inadequate daylight at all times when the outdoor illumination falls to this value, unless they are designed to admit a certain fraction of the outdoor light. The magnitude of this fraction must depend partly on the usage of the interior, and we shall have to discuss this further in discussing standards of illumination.

As to the brightness of natural light sources, that of the noon sun is of the order of 1,000,000 candles/sq. in., and we know that the sun in our eyes causes extreme glare: vision is impaired and considerable discomfort experienced. When the elevation of the sun is not sufficient to keep it out of the normal field of view, we take steps to shield the eyes from it. The sky, however, which diffuses the light of the sun and forms in effect a secondary source of large area, though it varies considerably in brightness, has an average value of only some 2 to 3 candles/sq. in. This is quite comfortable to the normal light adapted eye, although a small patch of brightness of this order seen in a dark surround is also disturbing. However, the brightness of the sky is the best guide to the limit we must set to the brightness of artificial light sources.

One characteristic of daylight is its spectral composition. We take the apparent colour of objects illuminated by daylight as their normal and expected colour quality, but most sources of artificial light have a spectrum which modifies the apparent colour to some extent. Often this may be of no consequence, but for certain interiors one of the basic requirements of lighting will be the provision at all times of apparent natural light.

In the case of sight, as in the case of the other special senses, the relation between stimulus and sensation follows Weber's law within wide limits. This law states that the increase of stimulus necessary to produce an apparent change of sensation always bears a constant ratio to the stimulus itself. Applied to lighting, this means that if we can just appreciate the difference of brightness produced by illuminations of 10 and 11 ft.-candles, we shall similarly appreciate the difference between 50 and 55 ft. candles, or between 100 and 110, but the difference between 50 and 51 or between 100 and 101 will be imperceptible. Thus, if we want to effect a noticeable improvement of illumination or brightness, we must always increase the existing value, whether it be high or low, by a certain minimum percentage, and not by a fixed arithmetic increment such as x ft.-candles. The percentage taken as an example is 10, but in certain conditions when two brightnesses are compared a difference between them of only 1 per cent. can be detected. When, however, we are considering the improvement of illumination in a building for the purpose of giving the interior a noticeably brighter appearance, or making a noticeable difference to the ease of seeing, a much higher percentage change must be made. It can be said that in these circumstances the smallest worth-while increment of illumination is one of about 25 per cent., but in assessing the requirements of different interiors, it is usual at present to work to a scale of illumination values of even larger intervals, of 50 per cent. or 100 per cent.

The basic lighting requirements for ease of seeing are obviously those necessary for adequate acuteness and speed of vision. These visual functions vary with illumination, as our appreciation of brightness does. Visual acuity improves by equal amounts with successive constant percentage increases of illumination; that is to say, acuity is directly proportional to the log. of the illumination up to a certain value, and for each small increment of visual acuity the proportional change of illumination necessary to produce it is large. If we plot a graph with visual acuity to an arithmetic scale and illumination to a log. scale, we get a straight line relation until we reach quite high values of brightness; so that we have to make a large increase in illumination, a ten-fold increase, to produce quite a small increase in visual acuity. When, therefore, we reach the higher values of acuity of the eye, we have to go to very high values of illumination.

It is important to note that high visual acuity is obtained only with suitable illumination of the objects which we wish to see and provided that their surroundings are also well illuminated. Good general lighting to brighten the whole field of view, and not merely the local area such as the bench or desk with which you are specially concerned, is important for easy seeing. This requirement is admirably satisfied out of doors in daylight, but is often inadequately met in the lighting of interiors both by natural and by artificial light. The brightness of the whole environment is also important psychologically, as a factor influencing the general feeling tone.

In passing, I should like to mention that a recent survey of artificial lighting in domestic premises has shown that in a large proportion of cases illumination values are such that less than half the full acuity of the eye can be realized. While many domestic tasks can be and obviously are done in these conditions, visual capacity is restricted to a level which leaves little or nothing in reserve and favours the existence of eye-strain, and is also the cause of accidents.

Relative speed of vision, which is extremely important in everyday life, also varies with illumination. It is not sufficient to have enough light to be able to see what we need to see without taking the time factor into account. Speed of seeing is a serious and often a critical factor in relation to safety and efficiency, and has both a direct and an indirect effect on health and comfort. I shall give two examples of the effect of illumination on speed of vision.

A group of secondary schoolboys were given a task involving the perception of detail of about the size characteristic of the symbols used in mathematical textbooks, and they performed this task under various illuminations, ranging from little more than 0.5 ft.-candle up to nearly 50, a ratio of 100 to 1. There again the task could obviously be done at all those illuminations, but with very different efficiencies, very different speeds. At a low illumination—the sort of illumination, unfortunately, which can be found without difficulty in a number of schools even to-day—the work took about 20 per cent. longer than it did with adequate illumination; and that low value usually involves bowed heads, bent backs, and a general posture which is anything but healthy. To obtain the highest illumination would involve planning the school to have a daylight factor of 10 per cent.

From results of this kind the recommended values of illumination which are now put forward have been partly derived. Incidentally, we can note here that the illumination in the home is very often somewhere between 1 and 5 ft.-candles, and not often more than 5 ft.-candles.

In addition to the effect of the level of illumination or brightness on visual functions such as acuity, speed of seeing and colour perception, there is evidence of a more general effect on our activities.

In providing the basic illumination required for different interiors, classified on the basis of the physiological and psychological needs of the occupants, we have to think in terms of a geometrical or ratio scale of values. This is recognised in current codes of recommended values of illumination, which give for a series of successively more exacting categories of visual task ranges of values the means of which increase in approximately equal ratio steps. The current Illuminating Engineering Society's code, which is now widely accepted as a guide to the illumination required in good lighting practice, shows this tendency, although it does not follow it quite strictly. Its recommendations have been based on the available results of scientific research and on what experience has shown to be most satisfactory in practice. It is, however, subject to periodical revision, both to make it more complete and to correct it where necessary in the light of new knowledge and experience.

The code is divided into a number of categories, and ranges of illumination are prescribed for each category. The lowest is 2 to 4 ft.-candles, and then we have 4–6, 6–10, 10–15, 15–25, 25–50 and upwards. I want to emphasize that recommendations of this kind necessarily refer to the requirements of the average person, whereas nature, as I mentioned earlier, provides for all. For various reasons, individuals differ widely in their light-needs. Inherent differences in the optical and neural apparatus for seeing, acquired defects from injury or disease, the normal differences due to age of the eyes, as well as other factors, all produce a considerable spread about the average.

Recommended values are therefore qualified by specifying a rather large tolerance, certainly not less than ± 25 per cent.; and in working to the mean value it should be remembered that we may be meeting the needs of probably not more than two-thirds of the occupants of a building; the remaining third really need

more light, and some of them may need several hundred per cent. more.

Recommended values can always be exceeded with advantage ; they must not be regarded as desirable maxima, and where it is possible to provide it, the eye can readily make use of higher illumination.

The avoidance of glare is a basic requirement for comfort and ease of seeing in buildings. Glare is defined in the international lighting vocabulary as "the disturbance of the sensitivity of the eye experienced when portions of the field of view have a brightness or intensity greatly in excess of that of the average for the field of view," but it is generally recognised that even when no disturbance of the sensitivity of the eye is noticeable certain conditions of local brightness cause discomfort and tend to be distracting and irritating. The presence of discomfort glare is often unrecognized as such, and the effects attributed to other apparent causes.

A number of objective factors is involved in determining the degree of glare likely to be experienced. These include the brightness of the light source, its candle-power, its angle of separation from any normal direction of view, the distance from the eye, the brightness of the immediate surrounds, and the brightness of the general field of view. Windows which are too small to admit light enough to produce a suitable relative brightness of the interior surfaces which form a large part of the field of view will be glare sources. In this connection, the colour of the interior decorations of a room is clearly an important factor, on which will depend the brightness contrast between the window and walls, floor and ceiling, and especially the wall containing the window, which receives no direct light from it. Light-coloured decorations, by reflecting and diffusing more of the light received from the source, also help to prevent the formation of harsh and troublesome shadows.

The avoidance of glare from modern sources of artificial light requires their enclosure, or partial enclosure, in fittings designed to limit the brightness to which the eye will be exposed. If the general illumination in a room is about 10 ft.-candles, the average brightness in the field of view is unlikely to be more than 0.01 candle/sq. in., so that if we are to avoid patches of brightness greatly in excess of the average, the brightness of any part of lighting fittings normally visible to the room occupants should be limited to a few candles sq. in. I have already referred to the average brightness of the sky as a likely limit, and, taking this as 2 to 3 candles/sq. in., the ratio of fittings to average field brightness in the example which I have just given would be 200 or 300 to 1. This ratio would be higher if the general illumination were less than 10 ft.-candles, and lower if the illumination were higher.

The brightness of the filament of a gas-filled tungsten lamp of the size which might be used to provide a general illumination of 10 ft.-candles is of the order of 6,000 candles/sq. in., or about 600,000 times the average brightness of the field within the room. A pearl lamp of similar size is much less glaring, but still uncomfortably bright, and should not be used bare if it will come within an angle of about 30° from any normal direction of view. An 80-watt white fluorescent discharge tube has a brightness of the order of 3 candles/sq. in. But, provided it is restricted to a relatively small part of the area of a fitting, a maximum brightness of about 10 candles/sq. in. is probably not excessive.

I am not going to deal with the application of particular types of fitting, but I want to point out that glare is often due to specular reflection by highly-polished objects or surfaces within the normal field of view rather than to light sources which are directly visible, and so the total enclosure of high brightness sources in some form of diffusing fitting is desirable where reflected glare would otherwise be troublesome.

We can summarize the basic requirements for health and comfort in respect of the lighting of buildings as follows. Lighting must be suitable (1) for affording safety to occupants in moving from place to place within the building ; (ii) for the creation of a reasonably bright environment, which is the natural desire and psychological need of all persons having the sense of sight ; and (ii) for efficient seeing of all specific visual tasks ordinarily required to be done within the building.

In order to be suitable for the discharge of these functions, the lighting must be planned to provide an adequate amount of light to give the physical objects of vision the necessary brightness, having regard to the nature of these objects, their dimensions and distance from the eye, their shape and colour, as well as to the speed of vision and fineness of discrimination required and the attention to be attracted to particular objects or parts of the environment. There is no necessary difference in the amounts of light needed to ensure safety, promote cheerfulness or to perform efficiently a specific industrial, school or domestic visual task ; usually, however, the requirements of safety and cheerfulness can be satisfied by a lower illumination than is necessary for tasks involving fine visual discrimination, and local lighting can be used for this if the local and general illumination values are in suitable ratios, preferably not exceeding 10 to 1.

Moreover, the illumination levels of different parts of the building should not differ too widely, especially if frequent passage from place to place is necessary. The eye requires an appreciable time for a change of adaptation from one brightness level to another very different level, and during this interval the sensitivity of the eye falls below the standard which it can ultimately reach under the different illumination. We have all had experience of this, particularly under the black-out. Thus, the general illumination of rooms, passages and stairways in such buildings as office blocks, factories, schools and dwellings should be suitably proportioned, and I suggest that a ratio of 5 to 1 should not as a rule be exceeded.

The basic requirement for achieving a satisfying brightness of environment in normal interiors is not simply a matter of an absolute standard of general illumination ; in this respect what is acceptable depends on its apparent value relative to some standard to which we compare it. This standard may be one to which we can make direct visual reference, or it may be a memory standard derived from previous satisfactory visual experience. Thus, in daylight we can usually make a comparison between the brightness environment inside a room and that revealed when we look out of the window, and we are not satisfied if the interior brightness is relatively very low, even though the actual illumination may be quite adequate for our seeing. Finally, lighting must be carefully planned for the avoidance of direct and reflected glare.

PWB

Study Committees

The following is the final extract from the booklet issued by the Directorate of Post-war Building of MOW containing reviews of ten of the *First Draft Reports* of its twenty-three Study Committees. See leading article for April 22, and these columns for April 22—29, May 6, 20, 27, June 17, 24, and July 8, 15, 22.

18. PLASTICS COMMITTEE. First Draft Report, October, 1942.

69 pp. including tables, divided thus :

Part I. Introduction. Constitution of Committee and terms of reference.

Short note on the application of plastics in building. Sectional introduction by study groups.

Part II. A sub-committee of investigators has carried out research in seven groups : (1) plastic mouldings ; (2) laminated structures ; (3) transparent and opaque sheet, other than laminated ; (4) resinous materials, paints and adhesives ; (5) extruded plastics ; (6) resin-bonded sheets, including plywood, composite board, etc. ; (7) miscellaneous, including expanded plastics. Each of the 7 groups reports on uses of plastics under the following application headings, which have been made to coincide as nearly as possible with P.W.B. Study Committee subjects :

A. Heating and ventilation.
B. Plumbing.
C. Lighting.
D. Paints and finishes.
E. Electrical installations.
F. Gas installations.
G. Internal and external furnishing.
H. Telecommunications.
I. Mechanical installations.
J. Materials (architectural use of).
K. Walls, floors and roofs.
L. House construction.
M. Timber structures.
N. Reinforced concrete structures.
O. Farm buildings.
P. Acoustics.

Part III. Appendix. Data (properties, sizes, colours, finishes, cost, advantages and disadvantages, etc.), relating to materials mentioned in the Report. Tables of comparison of properties of the materials studied in group 6.

Introduction.

Plastics is name of group of materials which, though rigid and permanent in use, are plastic at some stage in manufacture, and are shaped or formed by application of heat and pressure. Plastics are organic materials, mainly synthetic, but including the semi-synthetic cellulose group and casein.

Coal, water and limestone are the principal basic raw materials. Whilst available in abundance in this country, elaborate and expensive plant is required to convert them to the required form.

Characteristics of thermo-plastics and thermo-setting plastics are described briefly and distinction is drawn between moulding materials and the various forms of sheet.

The plastics industry has recently been so fully occupied that little raw material or plant has been available for building products. Expansion of the industry for war purposes, and the development of improved materials should enable plastics to assist in meeting the demands of post-war building. All recommendations must make best use of plant and materials available.

Application of Plastics to Building Structure.

In America and on the Continent, complete structures have been built more or less exclusively from plastics. These were exhibition models, designed to attract attention regardless of cost or practicability, and whilst many features were of practical value, full scale construction on similar lines is unlikely.

(a) Load-bearing members.

Committee has considered use of moulded or laminated plastics in place of wood or steel, for load-bearing parts of building structures.

RECOMMENDED that only resin-bonded plywood be considered at present for such use.

RECOMMENDED that consideration be given to use of waterproof glues in construction of timber roof trusses and use of resin-bonded plywood in forms of stressed skin construction. Guidance from Committees for Structure is requested on practical requirements.

(b) Linings or coverings for walls, ceilings and floors.

Many forms of sheet plastics have been used for wall linings, both panels, etc. Great variety of colours is available in laminated plastics : patterned and textured surfaces can be incorporated during manufacture. Decorative grades, being self-coloured, need no painting. But even so cost may tend to restrict use in domestic building.

Usual form of plastics sheet has no special value as thermal insulation.

Study is recommended of possibilities of fibre board, faced with plastics, and of sheet materials that can be used without cover strips to conceal joints. Guidance from Committees for Structure is sought on questions of strength, stiffness, thermal properties and sizes.

Resin-bonded plywood is

RECOMMENDED for external wall coverings, but for internal work where there is no risk of damp, has no special advantage.

Laminated and similar plastics sheet, though durable becomes shabby out of doors.

Suggestions are made for plastic flooring.

(c) *Building components.*

Window frames, doors, etc., could be made in plastics by direct moulding or by fabrication. Larger dimensions than those usual for steel sections would be necessary, unless new designs were evolved to suit material.

Present indications are that plastics would cost more than steel or wood. Further study needed before recommendations can be made. Immediate and effective application of plastics can be found in extruded or moulded fillets or glazing strips for metal or wood casements. Also for glazing, where requirements (for lightness or freedom from splintering) justify increased cost.

RECOMMENDED that doors made of plastics sheet, framed with extruded plastics, be given further consideration.

Moulded or laminated plastics can be used for skirtings, chair-rails, electrical conduit, etc. Cost needs investigation.

Fittings (door furniture, electrical accessories, etc.).

Draft Report shows that plastics offer unlimited scope for manufacture of fittings for buildings. War-time requirements have developed range of shock-resistant moulding materials, which should extend range of application of moulded plastics in post-war building.

Paints.

Principal synthetic resins used in manufacture of paint for decorative finishes are modified phenolic and alkyd resins. Cost is greater than that of natural resins, but use is justified by greater uniformity and improved properties imparted to the finish.

Designs and Standards.

Plastics products fall into two classes, according to volume of production. The first covers uses for which there is securely established demand, and for which fairly definite standards of material and design exist.

The second covers recent developments, notably for plumbing, which have yet to prove their worth. Industry needs guidance on mechanical and physical properties required.

RECOMMENDED for post-war work more care be taken in design, and in selection of appropriate materials to ensure good service. Too often in past price has been more important than service.

Plastics are extraordinarily adaptable, but not suitable for every purpose. Applications must be made with discernment if there is to be advantage to the user and credit to the industry.

RIBA

Examinations

Following are the dates of the forthcoming RIBA examinations :—

Intermediate Examination

November 12, 13, 15, 16 and 18, 1943. (Last day for receiving applications : October 1, 1943).

May 19, 20, 22, 23 and 25, 1944. (Last day for receiving applications : March 31, 1944).

November 10, 11, 13, 14 and 16, 1944. (Last day for receiving applications : September 30, 1944).

Final Examination

December 8, 9, 10, 11, 13, 14 and 16, 1943. (Last day for receiving applications : November 1, 1943).

July 5, 6, 7, 8, 10, 11 and 13, 1944. (Last day for receiving applications, May 31, 1944).

December 6, 7, 8, 9, 11, 12 and 14, 1944. (Last day for receiving applications : October 30, 1944).

Special Final Examination

December 8, 9, 10, 11, 13, 14 and 15, 1943. (Last day for receiving applications : November 1, 1943).

July 5, 6, 7, 8, 10, 11 and 12, 1944. (Last day for receiving applications : May 31, 1944).

December 6, 7, 8, 9, 11, 12 and 13, 1944. (Last day for receiving applications : October 30, 1944).

Examination for Building Surveyors

May 3, 4 and 5, 1944. (Last day for receiving applications : March 21, 1944).

BUILDINGS ILLUSTRATED

RECORDING THEATRE AT DENHAM (pages 95-96). F. F. Doyle, L.R.I.B.A., P.A.S.I., architect ; A. W. Watkins, sound engineer ; C. C. Crowhurst, electrical engineer ; J. F. Farquharson, M.I.STRUCT.E., structural engineer ; J. Pritchard Williams, F.S.I., quantity surveyor. General contractors : Ekins & Co. Ltd. Sub-contractors : H. W. Callum & Co. Ltd., acoustic materials ; Western Electrical Co. Ltd., sound equipment ; Troughton & Young Ltd., lighting ; H. W. Dutton & Co. Ltd., heating and ventilating ; Hollis Bros. & Co. Ltd., hardwood floor ; Moreland Hayne & Co. Ltd., steelwork ; Limmer and Trinidad Lake Asphalte Co. Ltd., asphalte ; Expanded Metal Co. Ltd., ceilings ; Permanite Ltd., roofing ; Marley Tile Co. Ltd., roofing tiles.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

The Incorporated Association of Architects and Surveyors maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. Address: **75 Eaton Place, London, S.W.1. Tel.: Sloane 5615** 991

SOMERSET COUNTY COUNCIL

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for Temporary Assistants in the Quantity Surveying Section of the above department. The salary scale attaching to the post is £310 per annum, by annual increments of £15 to £415 per annum, plus 15 per cent. for 46 hours week now adopted by the Council. A war bonus, at present £30 per annum, is also payable.

Candidates must be capable of making surveys and preparation of the necessary drawings and specifications for small alterations, in addition to the settlement of final accounts.

Applications, stating age, training, experience, qualifications, position in regard to military service, and length of time required to take up new appointment, together with copies of three recent testimonials, should be sent to the undersigned not later than Saturday, 14th August, 1943.

R. O. HARRIS, A.R.I.B.A.,
County Architect.

Park Street,
Taunton. 930
29th July, 1943.

Architectural Appointments Vacant

Advertisements from Architects requiring Assistants or Draughtsmen, and from Assistants and Draughtsmen seeking positions in Architects' offices will be printed in "The Architects' Journal" free of charge until further notice. Other "Appointments Vacant" and "Wanted" will be found under later headings, and are subject to the charge given under each heading.

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

ASSISTANT BUILDING SURVEYOR required Central London. Must be exempt M.S. Write with brief particulars for interview to P.A.S.I. Box 131.

Architectural Appointments Wanted

A.R.I.B.A. offers part-time services in own office, London area. Wide experience of structural surveys, planning, detailing, and some knowledge of quantities. Box 102.

ASSISTANCE ON DRAWINGS, etc. Part-time work offered by post; setting out plans from sketches, perspectives, etc. Architectural training and building experience. Box 106.

YOUTH, aged 17, desires post in architect's office, studying architecture and draughtsmanship. Now preparing for professional preliminary examination. London area. Box 108.

ARCHITECT requires position London area, experienced in carrying through works complete. Please state approximate salary and prospects. Box 110.

F.R.I.B.A., 36 years old, exempt, requires post; Watford district preferred; 12 years' general experience. Salary by arrangement. Box 112.

15 YEARS' EXTENSIVE EXPERIENCE in peace and war-time planning and design, including R.A.F. aerodromes, storage depots, turfed camouflage sheds and traversed bomb stores, hutted camps; also strutting and shoring of dangerous buildings in bombed areas and general emergency measures. Box 114.

SENIOR ARCHITECTURAL ASSISTANT requires position in progressive office on reconstruction and post-war planning or research; 12 years' sound experience on good classes of building. Scotland or Provinces preferred. Exempt military service. Box 119.

PUBLIC SCHOOL BOY, aged 17, desires post in architects office in the London area. Applicant takes Higher Certificate in July.—Write Mrs. Custance, 433, Edgware Road, W.2. 120

SITUATION IN ARCHITECTS OFFICE required by youth, aged 16 years. Leaving County School this term. Now sitting for General Schools Examination. Write Bass, 6, Denbigh Road, Southall, Middx. 121

CHARTERED ARCHITECT, over military age, desires engagement; wide experience in all branches; recently engaged upon War Ministry Buildings. Box 122.

ARCHITECTURAL ASSISTANT, seven years' experience, age 25 years, exempt military service, seeks position in architects or similar office. Experienced in design and construction, surveying, levelling and estimating. Studying for forthcoming Inter. R.I.B.A. examination. Good references. Box 124.

CHARTERED BUILDING SURVEYOR, 27, exempt Forces, requires situation in Birmingham; wide experience, including architectural work and quantities. Box 125.

ARCHITECTURAL ASSISTANT, age 19, desires post in architect's office, preferably in Birmingham or Shrewsbury areas. Competent draughtsman, able to make surveys, use level, theodolite, etc.; sound knowledge of building construction; over 2½ years as builder's draughtsman; studying for Studentship R.I.B.A. Not liable for military service. Prefer essential work. Available from July 26. Present salary £5 15s. per week. Box 126.

ARCHITECTURAL AND SURVEYING ASSISTANT requires position on work of National importance; 6 years' experience industrial and domestic design; willing to go anywhere, if has post-war possibilities; salary by arrangement. Box 127.

Classified Advertisements continued on page xxxviii

LADY seeks position as Junior Architectural Assistant in Reading. Box 128.

ENGINEERING AND ARCHITECTURAL ASSISTANT. Expeditious and efficient detail draughting. Accurate engineering, calculations and quantities. Thorough site supervision. Medically exempt. Age 28. Office if required, but travel no object. Farrant, 366, Chelsea Cloisters, Sloane Avenue, S.W.3. Kensington 2525. 129

SURVEYOR, PROPERTY MANAGER, etc., requires appointment; 25 years' theoretical and practical experience in the profession and building trade. Not liable for military service; rendered war service 1914-18 first great war. Energetic, alert and conscientious; supervision all branches of the building, allied and specialists trades; all classes of buildings, etc., and also war damaged properties, etc. Excellent testimonials. Please apply Box 130.

ASSISTANT ARCHITECT (registration pending), having just completed a five years' diploma course at the Regent Street Polytechnic School of Architecture, requires position in architect's office. Would prefer post-war reconstruction work with local government. Not liable for military service. Salary by arrangement. Meller, 35, Clifton Gardens, W.9. 134

YOUTH, 17, registered as Probationer; distinction in Drawing, London General Schools. Would like summer vacation work in architect's office, from August 16 to September 20. Write R. Burbidge, c/o 53, Beattyville Gardens, Ilford, Essex. 135

ARCHITECT. Experience carrying through works complete; all parts country. Requires position with other architect or firm. Please state possibilities and remuneration. Box 136.

CHARTERED SURVEYOR; qualified town planner; experienced in research work; some experience of journalism and publicity; ineligible for military service; would be interested to hear of any remunerative opening for his services. Box 137.

Other Appointments Vacant

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

ASSISTANT EDITOR wanted for Architectural Paper. Write, with full particulars of qualifications, salary required, &c., to Box 51.

Miscellaneous

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

A. J. BINNS, LTD., specialists in the supply and fixing of all types of fencing, tubular guard rail, factory partitions and gates. 53, Great Marlborough Street, W.1. Gerrard 4223-4224-4225.

SPECIFICATIONS AND BILLS OF QUANTITIES, etc., expeditiously and accurately typed or duplicated. Translations and Facsimile, Typewriting. All work treated confidentially. Miss G. Saunders, Typewriting Bureau, 17, Dacre Street, Westminster, S.W.1. Telephone: Whitehall 2605.

WANTED to purchase. The Library of Planned Information, Vols. 1—1V. Box 76.

WANTED. Complete set of Information Sheets, loose or bound. State price. Box 77.

WANTED. Complete set of volumes of the Architects' Journal Library of Planned Information. Box 98.

WANTED TO PURCHASE. A copy of *Specification*, 1933. Box 123.

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BRITANNICA, Conway Bridges, with beautiful plates, 17s. 6d., 1850, perfect; probe the Country Gentleman Estate Book, 1904, for agricultural design of workman's cottages, etc., 12s. 6d. Plumbley, Freshwater, I.W. 133

Educational Announcements

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MANCHESTER MUNICIPAL COLLEGE OF TECHNOLOGY.
(Faculty of Technology in the University of Manchester).

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LECTURER IN BUILDING.

The Governing Body invites applications for a Lectureship in Building in the College of Technology, with the title and status of Lecturer in the University of Manchester.

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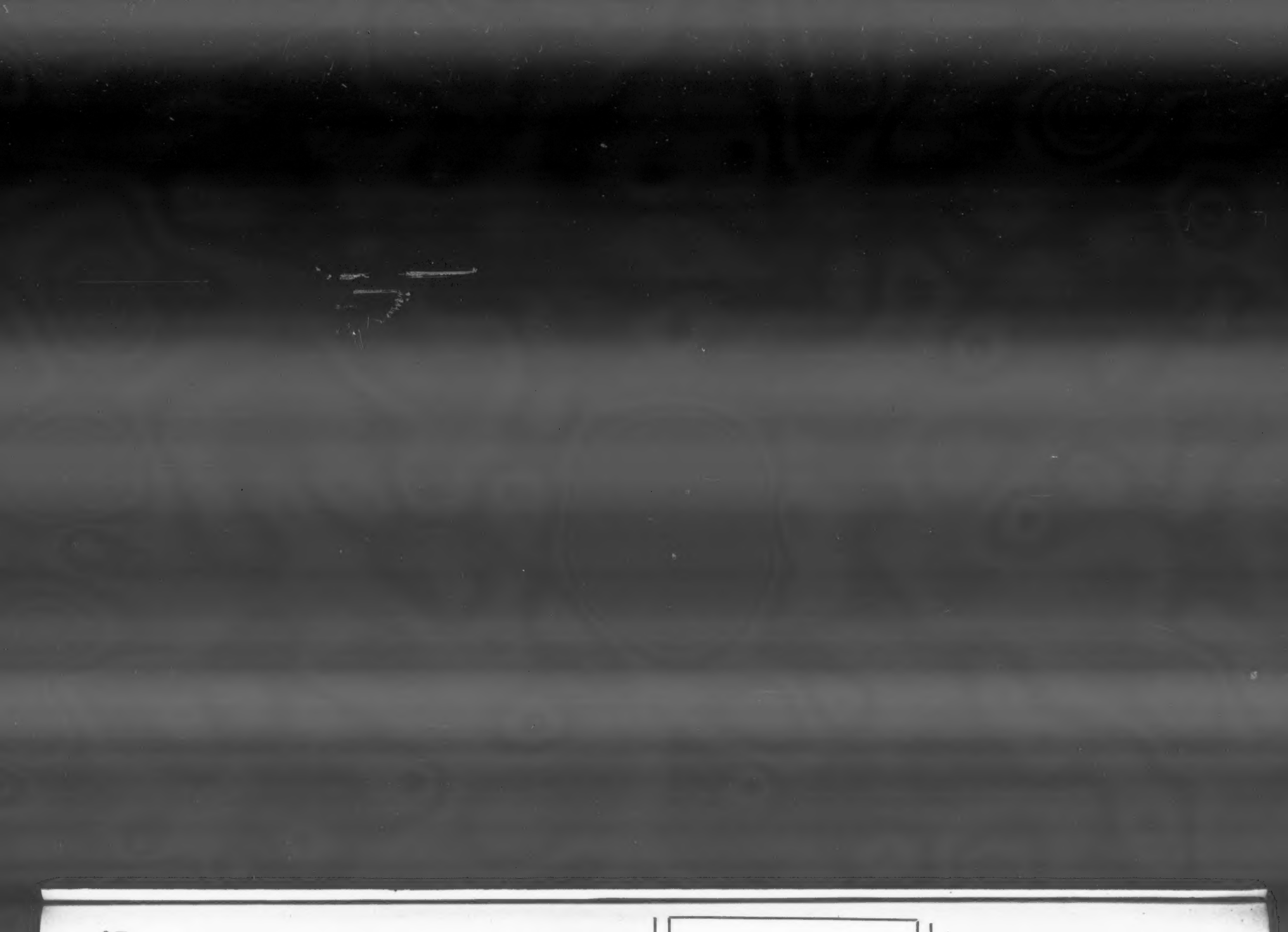
Salary: £425 to £550 per annum; commencing salary will be determined according to the experience of the successful candidate.

Conditions of appointment and form of application may be obtained from the Registrar, College of Technology, Manchester, 1. The last day for the receipt of applications is **Monday, 9th August, 1943.**

Canvassing, either directly or indirectly, will disqualify a candidate for appointment.

J. E. MYERS,
Principal of the College.
929



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