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JOURNAL

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JOURNAL AND THE ARCHITECTURAL ENGINEER
IS PUBLISHED EVERY THURSDAY BY THE ARCHI-
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The Editor will be glad to receive MS. articles
and also illustrations of current architecture in this
country and abroad with a view to publication.
Though every care will be taken, the Editor cannot
hold himself responsible for material sent him.

THURSDAY, MARCH 12, 1942.

NUMBER 2459: VOLUME 95

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The fact that goods made of raw materials in short supply
owing to war conditions are advertised in this JOURNAL
should not be taken as an indication that they are necessarily
available for export.

Owing to the paper shortage the JOURNAL, in common with all
other papers, is now only supplied to newsagents on a "firm
order" basis. This means that newsagents are now unable to
supply the JOURNAL except to a client's definite order.

Another Step towards Victory



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from a painting by M. MACKINLAY

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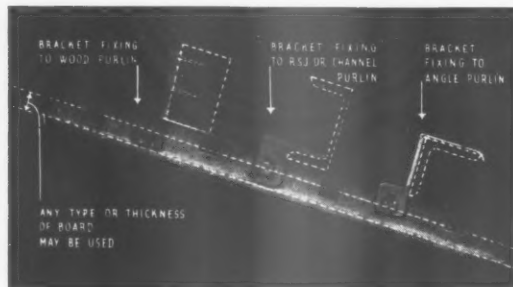
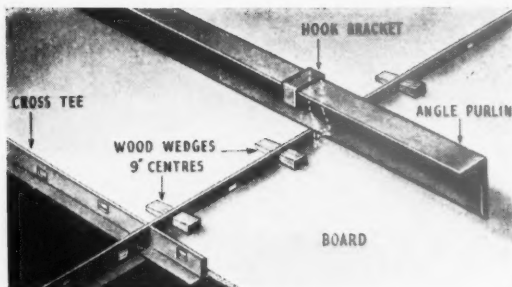
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FOR APPLYING ANY TYPE OF BOARD TO CEILING & WALLS

The Wallboard is secured to sherardised, pressed steel, slotted T-section by wedges. To the right are shown the methods of attaching the support to various forms of purlin.



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



8 POINTS TO BE NOTED

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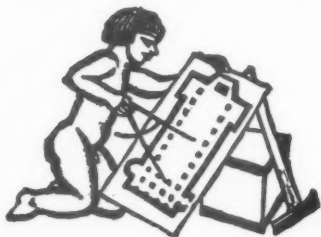
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In common with every other periodical and newspaper in the country, this JOURNAL is rationed to a small proportion of its peace-time requirements of paper. This means that it is no longer a free agent printing as many pages as it thinks fit and selling to as many readers as wish to buy it. Instead a balance has to be struck between circulation and number of pages. A batch of new readers may mean that a page has to be struck off, and conversely a page added may mean that a number of readers have to go short of their copy. Thus in everyone's interest, including the reader's, it is



important that the utmost economy of paper should be practised, and unless a reader is a subscriber he cannot be sure of getting a copy of the JOURNAL. We are sorry for this but it is a necessity imposed by the war on all newspapers. The subscription is £1 3s. 10d. per annum.

from AN ARCHITECT'S *Commonplace Book*

"The first thing to be required of a building—not, observe, the *highest* thing, but the first thing—is that it shall answer its purpose completely, permanently, and at the smallest expense. If it is a house, it should just be of the size convenient for its owner, containing exactly the kind and number of rooms that he wants, with exactly the number of windows he wants, put in the places that he wants. If it is a church, it should be just large enough for its congregation, and of such shape and disposition as shall make them comfortable in it and let them hear well in it. If it be a public office, it should be so disposed as is most convenient for the clerks in their daily avocations; and so on; all this being utterly irrespective of external appearance or æsthetic considerations of any kind, and all being done solidly, securely, and at the smallest necessary cost."

John Ruskin.

NEWS

- ★ War Damage Commission's revised scale of professional fees page 191
- ★ Central Register and the Ministry of Labour and National Service page 193
- ★ First Report of the Directorate of Post-War Building page 206

APPOINTMENTS

Sir William Jowitt has been appointed Paymaster-General; and Mr. H. G. Strauss, M.P., Additional Parliamentary Secretary, Ministry of Works.

Sir William Jowitt will take over the duties of organizing and co-ordinating the whole field of planning for post-war reconstruction, formerly carried out by Mr. Arthur Greenwood when Minister without Portfolio. A committee of the various Ministers whose departments are concerned in the matter will continue to function.

FOOD STORAGE

The hundredth standard food store has been completed by the M.O.W.P., and forty more—the beginning of a new programme of 127—have been put in hand. It is a single-storied building of pre-fabricated steel, concrete floor, brick walls and steel and corrugated asbestos roof, built to a standard plan. Dimensions are: 214 ft. 6 in. by 120 ft. 9 in. by 10 ft. 6 in. high. This means that an area of approximately 2,590,000 square feet of Britain has been concreted and covered for food storage.

CHANGE OF ADDRESS

Peter Lind and Co., Building and Civil Engineering Designers and Contractors, have moved to Stratton House, Piccadilly, W.1. Telephone No.: Grosvenor 4601.

UNITY IN PROFESSION

It will be recalled that on November 10 last, a preliminary meeting of architectural bodies was held at the Architectural Association, at which certain resolutions relating to the desirability of unity in the profession were passed. At the adjourned meeting held on February 28, the following resolution was adopted:

"That this meeting having continued its deliberations, it unanimously confirmed its previous decision in favour of a scheme for the unification of the architectural profession, and those attending the meeting individually agreed that further steps should be taken as soon as possible for further discussions on the matter to be undertaken on a more comprehensive basis."

The following bodies were represented at the adjourned meeting: Architectural Association, Faculty of Architects and Surveyors, Incorporated Association of Architects and Surveyors, Institute of Registered Architects, Modern Architectural Research Group, and "Unattached" Architects.

WAR DAMAGE REPAIRS

The War Damage Commission announces that the official notice of September 22 last, setting out the scale of professional fees for acting in an advisory or supervisory capacity in connection with the execution of the works which will be allowed by the Commission in claims for cost of works or temporary works, has been withdrawn and will be replaced by the following:—

Scale of Fees.

(1) For making, when necessary, detailed survey of the building if no drawings are available, or checking the drawings if available:—

Principal's time ...	£5 5s. 0d. a day
Senior Assistant's time ...	£2 12s. 6d. a day
Junior Assistant's time ...	£1 11s. 6d. a day

NOTE.—Senior assistants to mean assistants receiving £6 6s. 0d. a week and upwards; junior assistants, those receiving up to £6 6s. 0d. a week.

(2) (a) For preparing working drawings and specification of the works (or equivalent document); where necessary, obtaining tenders and/or arranging a contract; for general supervision of the execution of the works and certifying for payments and completion:—

10% on works costing up to £500 with a minimum fee of £10 10s. 0d.
9% on works costing between £500 and £1,000 with a minimum fee of £50.
8% on works costing between £1,000 and £1,500 with a minimum fee of £90.
7% on works costing between £1,500 and £2,000 with a minimum fee of £120.
6% on works costing over £2,000 with a minimum fee of £140.

(b) For preparing a specification of works (or equivalent document); for obtaining tenders and/or arranging a contract, where necessary; for general supervision and execution of the works and certifying for payments and completion:—

5% on the first £500 of the cost with a minimum fee of £1 1s. 0d. (or a minimum fee of £3 5s. 0d. where the work affects the structural stability of the building or involves reinstatement or



Charlie, film bricklayer

A new film star has been discovered by the Ministry of Information. You will see him at the end of the month in your local cinema, when the Government's seven-minute film called **BUILDING** will be shown. He is Charlie, the bricklayer, who plays the leading part in this film, the chief purpose of

which is to stress the fact that the man who handles the trowel is as important in wartime as the man who fires the gun. Here is a close-up of Charlie, taken from the film. In real life he is Mr. Albert W. Fielding, formerly a bombardier in the Royal Field Artillery (World War No. 1), of Edmonton, London.

repair of features of architectural or artistic interest).

4½% on the next £500 of the cost.

4% on the next £500 of the cost.

3½% on the balance of the cost.

(3) The above fees are exclusive of travelling expenses and other reasonable disbursements and the fees under (1) are in addition to those under (2).

(4) The above fees are exclusive of the wages of a clerk of works.

(5) The above fees are exclusive of those for quantity surveying services. If such services are required, fees will be allowed, in addition, on the normal professional scale.

(6) The above fees are inclusive of the fees of any consultant or specialist engineer by whom the architect or surveyor may wish to be advised.

(7) Where repairs are carried out to several properties in the same area and in the same ownership, the scale of fees may be applied by reference to the aggregate cost of the work, provided that the premises are in the same vicinity, that the same builder carries out the work, and that all the work is done at the same time.

Circumstances under which Fees can be allowed.

(1) It is a condition of the allowance of fees that an appropriate specification or equivalent document conveying to the builder clear directions as to the work to be carried out is prepared before or at the time when the works are put in hand, and that the person charging the fees certifies that he has fully performed the services described under the appropriate heading or headings of the scale.

(2) Fees for quantity surveying services will be allowed where the works cost more than £1,000, and where these services are rendered by a Quantity Surveyor or a firm of Quantity Surveyors practising as such, not being the person or firm rendering the services described in paragraphs 1 (a) or 2 (b) of the scale above.

Provided only that where the person or firm who has rendered the services described in paragraphs 2 (a) or 2 (b) of the scale above in the capacity of Registered Architect, is also in regular practice as Quantity Surveyor, fees for Quantity Surveying services may also be allowed where the certificate that these latter services have been performed is signed by the person (stating his qualifications) who has actually rendered

such services, and also by the principal or firm with which he is connected.

(3) Pending further discussion with the professional institutions concerned the Commission has decided that the scale will only apply to works costing less than £50,000.

(4) The scale is not applicable to cases where, owing to the special nature of the work, the accepted practice would be for the work to be carried out under the direct supervision of an engineer (e.g. work on public utility undertakings such as gas and water services).

This announcement replaces the announcement of September 22, the chief difference being that whereas previously fees were allowable where the cost of the work was £100 or more, or where the work affected the structural stability of the building or involved the reinstatement or repair of features of architectural or artistic interest,

it has now been decided, after further consultation between the Commission and the Royal Institute of British Architects, the Chartered Surveyors' Institution and the Auctioneers' and Estate Agents' Institute, and with the concurrence of the other professional Associations concerned, that fees will be allowable whether the cost of the works is over or under £100 on condition that a proper specification or equivalent document has been prepared before or at the time when the work was put in hand.

Under the War Damage Act the Commission may only make payments of cost of works equal in amount to the proper cost of the work executed. "Proper cost" is defined in Section 3 (3) of the Act where it is stated to include "the cost of the necessary employment of an architect, engineer, surveyor, land agent or other person in an advisory or supervisory capacity in connection with the execution of the works." Accordingly it will be observed that fees are only allowable where the professional man acts in supervising the works of repair and that the Commission has no power to repay professional charges incurred by a claimant in making a claim, either for a cost of works or a value payment.

It is also to be borne in mind that the Commission may only pay an amount equal to the cost of the reinstatement of a damaged building to its form immediately before the damage, even though the work of reinstatement may, in fact, include alterations and additions. Professional fees, admissible in claims, must, therefore, be assessed on the basis of reinstatement in the original form, any additional fees on account of alterations and additions being a matter between a client and his professional advisers.

THE CENTRAL REGISTER

The Central Register Department of the Ministry of Labour and National Service has recently circularised architects and architectural assistants on the Central Register, asking them to fill in the buff cards which are now in use in place of the original cards which were issued when the architects' section of the Central Register was first formed at the end of 1938. Many of those who were circularised have failed to complete and return the new cards. In addition, the circular has failed to reach others whose names were included in the original Central Register.

It is essential in order to bring the Register up-to-date and facilitate its smooth working, that all those who have not already completed and returned the cards and who are not serving in the Armed Forces should do so. In addition there are many architects and architectural assistants who have qualified for inclusion in the Register since it was first formed, but have not applied for inclusion.

It is urged, therefore, that in cases where architects have received the buff cards they should complete and return them, and that all those who have not received them should apply for copies without delay, either direct to the Central Register at Queen Anne's Chambers, Tothill Street, London, S.W.1, or to the Professional Institutions of which they are members.

WASTE PAPER

On Monday last a Ministry of Supply order made wasting or destroying paper an offence punishable by imprisonment or a fine—or both.



REITH INTO PORTAL

DURING the last two years the Office of Works, once regarded as stodgy, has been amazingly volatile. On October 3, 1940, headed by Lord Reith, it emerged as a Ministry of Works and Buildings only to reappear four weeks ago as a Ministry of Works and Planning. Some said these changes were changes in name only. As such they did at least acknowledge the importance first of building, later of planning, and it was felt that more would come. In his statement to the Upper House announcing this latest transformation, Lord Reith went so far as to say that in the opinion of the Government physical planning was an activity which would help us to win the war by making clear the nature of our aims.

Scarcely however had the echoes of these words died away when the Minister himself disappeared to be replaced with surprising suddenness by Lord Portal. Lord Reith after 18 months in office remained something of a myth and a mystery. Lord Portal is not well known. The situation is altogether obscure.

It is certain that Lord Reith's exit will cause much regret. He had a sense of mission and succeeded in inspiring large sections of the public with a desire to stamp out obscenity, as he called the chaos of town-country* and create order (or decency) in its place. His personality has become closely associated in the minds of many people with the movement for a better Britain after the war. If his disappearance means the end of that movement then it is a national catastrophe.

On the other hand, the most modern school of thought in the architectural and allied professions has consistently held the opinion that planning is not merely one of our war aims but one of the chief methods open to us of winning this war. Planning they think should start now. Planning they say has a dual purpose: (a) to secure an arrangement of parts that satisfies; (b) to secure an arrangement of parts that works. Obviously amenities (that is to say satisfying

* And rightly; the morals of the British set a higher standard than their taste.

inessentials) must go to the wall in wartime. But efficiency, on the other hand, is more important than ever (efficiency incidentally is increased if inessentials are neat and pleasing—paint, for instance, a cheerful colour). To those who argue that planning takes time this school would answer so does thinking, so does the setting up of any kind of organization, but nevertheless it pays.

Is it possible that this change of ministers, accompanied as it is by a general reconstruction of the Cabinet which has resulted in an eclipse of the Minister of Post-War Reconstruction (without portfolio) balanced by the creation of a Minister of Production (full member of the Cabinet), means that the Government is going to start planning at a higher level right now?

No one yet knows what Minister of Production means. But if it means more than Minister for Supply it means presumably co-ordinating or planning the use of the resources of this country as a whole. This would involve physical planning of a constructive kind, which in wartime would have little to do with amenity, but in peace-time would do more to make it possible than any legislation so far suggested. The first stage in planning—physical or economic, they hang together—is to set a complete programme, not a partial one, stating the aims to be achieved together with a rough estimate of the resources available for each purpose. This is where the Ministry of Production comes in. The next stage is to work out geographically with due regard to the position of existing fixtures and fluid resources (terms which cover not only land and buildings but transport facilities, labour, plant and materials, raw or otherwise) what are the best combinations to achieve the aims stated with the means that can be allowed. This might be the work of a central planning authority. Such an authority might sketch out a rough programme for the whole country to be worked out in greater detail by regional planning authorities with greater knowledge of their areas, so that finally local authorities with local knowledge were presented with a programme that stated clearly all the needs to be met (also the plant, labour and materials at their disposal), and then left free to decide for themselves, after making a study of the existing situation, the best way of using what they have to get what they need. This would make possible constructive planning as opposed to sectional control.

In other words this change of ministers may mean that in future we are not even to have propaganda. Then God help us. On the other hand it may mean that propaganda for amenities is to be exchanged for stark planning of actualities. That seems almost too good to be true.

The first view would certainly explain the removal of Lord Reith. The second does not appear to do so. Lord Reith has always seemed anxious to press on with the work of planning as fast as the Government, of which he formed part, would allow him.



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

N O T E S & T O P I C S

DIRECTORATE OF POST-WAR DESIGN

The Ministry for Works and Planning announces that it is getting ahead with research on post-war problems affecting building, without waiting for further powers to be conferred. The Ministry started working out its programme about twelve months ago, but this is the first public announcement. Work is divided under three headings: Installation, Construction, Design. Particulars of all the different subsections are given on page 206. As nobody knows how much we'll have to build, or how much we'll have to build with, the Directorate of Post-War Design very wisely sticks to the question of what is technically possible, and what is the best practice in each case.

ARCHITECTS DISAGREE

The discussion which followed the reading at the R.I.B.A. last week of progress reports by secretaries of various reconstruction committee groups showed that though architects are trying hard to do their best for the world, and the world is anxious to make use of architects, they do not appear to understand each other very well.

★

Architects on their side don't seem to have any idea of how the world works. The world on the other hand doesn't appear to understand what architects are for. Mr. E. Dudley

Stamp probably expressed a very general view when he said: "We, on the Scott Committee, are most anxious to take the advice of architects, but architects do not tell us what is *right*. They all disagree."

★

The only living person I ever heard of who felt himself able to lay down simple rules for distinguishing right from wrong in architecture is Adolf Hitler. He, it is true, did succeed in doing so to his own satisfaction. Now any Willie or Fritz can recognize good German art, architecture or literature without stopping to think; he scarcely even needs to see it. Hence what is known as the style of the Third Reich, rather impressive in its way, but a bit dead looking. I'm not sorry the R.I.B.A. doesn't feel able to do anything of the kind.

★

Another jibe made against architects is that they don't know what kind of a kitchen a working-class woman wants. But in this country the architect isn't allowed to get into touch with working-class women. That's the trouble. It's not his fault if a local authority housing committee undertakes to say what the working classes want and guesses wrong.

★

On the Continent the people for whom the houses are to be built are invited to form themselves into co-operative housing societies which elect their own committees to manage their own affairs and engage their own architect. They are able to say exactly what they really do want—and that's that.

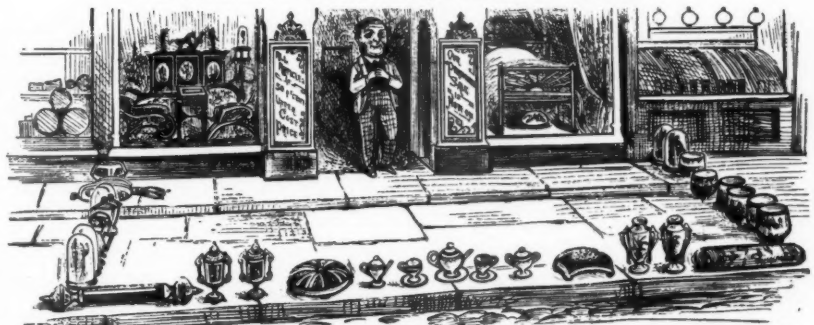
HOT GOSPELS

One or two publishers are beginning in a small way to tell the British public what planning is about.

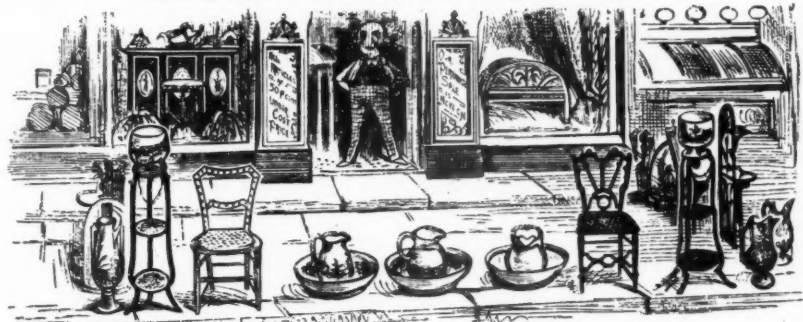
★

There is a Puffin picture-book by S. R. Badmin to come out shortly, called "Village and Town," which is described as History by way of Building, and sets out to show the connection between architecture and life. It will cost sixpence, and if it succeeds it will be an eye-opener.

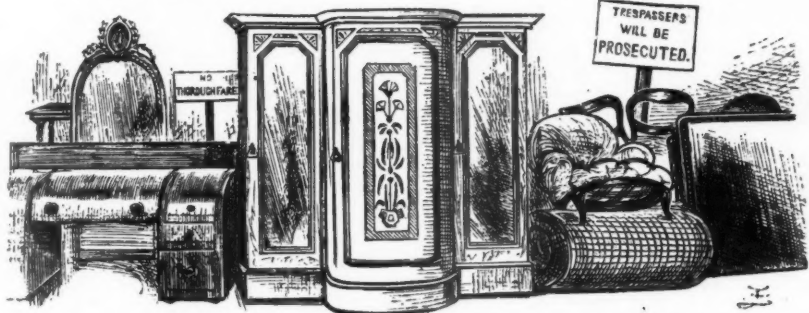
No. 12.—A HINT ON THE ACQUISITION OF PAVEMENT.



When an exposé of wares has set his mind on acquiring any piece of public pavement, he should take a hint from the example of Lords of the Manor, and commence his enclosure with a low fence of unobtrusively small articles.



After a time the fence may be somewhat increased in height; and again, after a further period,



may be finally developed into the FENCE PROPER—a substantial barricade of heavy furniture. The enterprising exposé of wares may then apply for a vote for the county.

12

from The British Tradesman, Fun Office, 1880.

There is also, I believe, a Penguin on the point of publication which is a résumé of Ralph Tubb's *Living in Cities* exhibition, and *Your Inheritance* (reprinted from the Christmas Number of the JOURNAL), an uncomic strip telling the life story of a piece of land, is actually out.

★

Enclosure, which forms an important part of the story of *Your Inheritance*, is often written about as though it were an activity of the remote past, but it was a sufficiently lively question in the 19th century

to produce the kind of facetious irony that Victorian humour specialized in. *The British Tradesman* (and other sketches, including *The Complete Builder*, Fun Office, London, 1880), for instance. In this highly period book, scintillating with the wit of the day, the example of lords of the manor is held up as a model for tradesmen who aspire to the pavement outside the shop. The page is reproduced above.

★

The section on the *Complete Builder* is full of the same kind of fun.

ASTRAGAL

ALL - PLY H

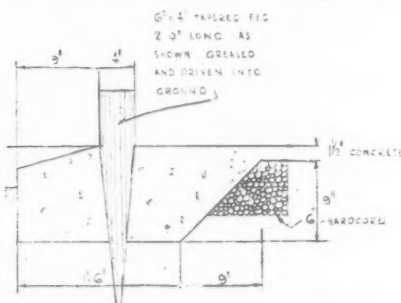


A new war-time economy hostel is illustrated here. It is designed by the Ministry of Works and is made entirely of wood, yet less wood material is used in its construction than was used in a pre-war hut of the same size classed as a "non-timber" building. This has been achieved by attention to design so as to economise timber in every way, and by the increased use of plywood. Walls, roof, doors and furniture fittings are all of plywood on a light timber frame. They are made in sections in the factory and the prefabricated parts are then transported to the site and erected on a cement base previously laid down.

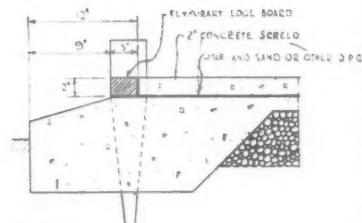
Top, building up the partition wall; the upper panel, which reaches to the roof, is in position. Below: Fixing one of the lower roof panels in position. Facing page: 7, section of wall holding window frames ready in position to take the frames. When these huts are mass-produced, window frames will be hung in position in their wall section at the factory, all ready for erection on the site. 11, two adjoining cubicles taking shape.



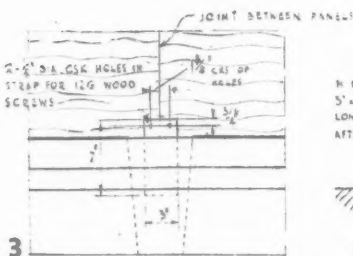
FIXING FOR OUTER WALLS



1 Setting out PEGS for holes in concrete.

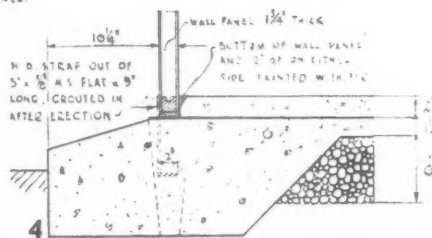


2 Setting out EDGE Board.



3

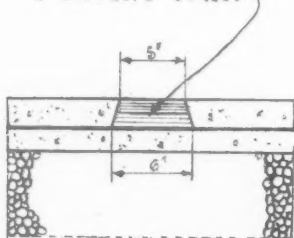
WALL PANELS in position.



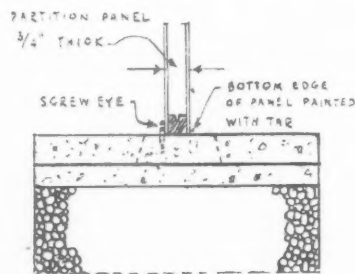
4

FIXING FOR PARTITIONS

2" x 1/2" TAPERED WOOD BLOCK 6" LONG
DIPPED IN TAR AND SET IN
2" CONCRETE SCREED



5 Setting out wood blocks for anchoring PARTITIONS.



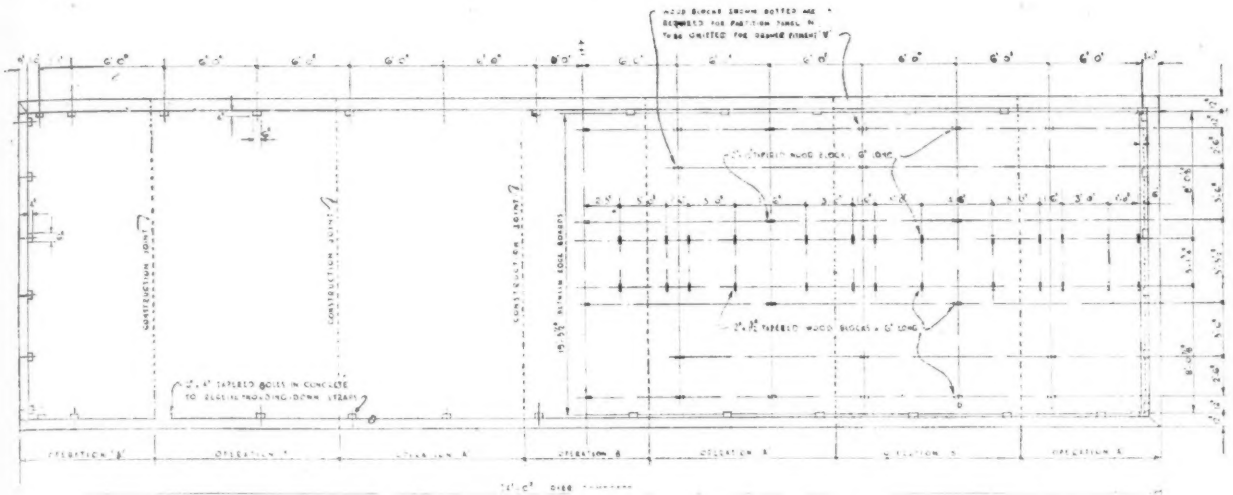
6 PARTITION panel in position.

The hostel is roughly 72 ft. by 18 ft. 6 in. by 7 ft. 2 in. (height to the eaves) with cubicles for 24 agricultural or munition workers. Cubicles are arranged 12 on each side of a central corridor (9).

Walls and roof are made in standard sections 6 feet wide, of 1 1/2 in. square timber framing divided into a lattice by 3/8 in. thick slats faced both sides with 1/4 in. plywood, bringing the over-all thickness of the walls up to 2 in. From the point of view of heating it will be an extremely comfortable hut.

As is well known, ordinary plywood will not stand up if wet, and hence must not be exposed to weather. How then can walls and roof be made of plywood? The answer is resin-bonding, a process by which the veneers are bonded together with Urea formaldehyde resins. The resultant ply acquires additional strength and can stand up to wet weather. Even if resin-bonded ply is soaked in water, the layers will not come apart. As to strength, Ministry of Works tests have shown that 1/4 in. resin-bonded plywood can be made to

Y HOSTEL FOR MOWP



8 PLAN of a typical hut.

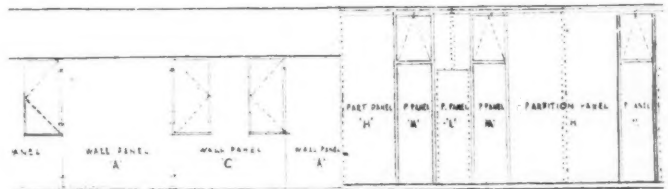


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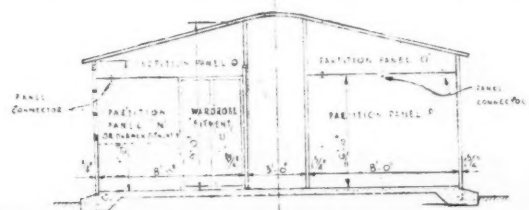
do the work of 1 in. or 1½ in. solid timber. In this hostel, therefore, walls and roof sections are faced on the exposed side with resin-bonded ply. Ordinary dry-cemented ply may be used for the inner sides.

Joints are made by means of mild steel plates, in the case of adjoining sections in the same line; and by interlocking screw-eyes and screws for right-angle joints. A length of hard wood fitting into a groove, also assists the joinery. Joints are made watertight with scrim and mastic. External walls are anchored to the concrete foundation by mild steel straps grouted into holes left in the concrete. Figs. 1 to 4 show the anchoring of outer walls. Figs. 5 and 6 show fixing for partitions.

Timber-saving is ingeniously demonstrated in the construction of the furniture "built in" as part of the partition wall separating cubicles.



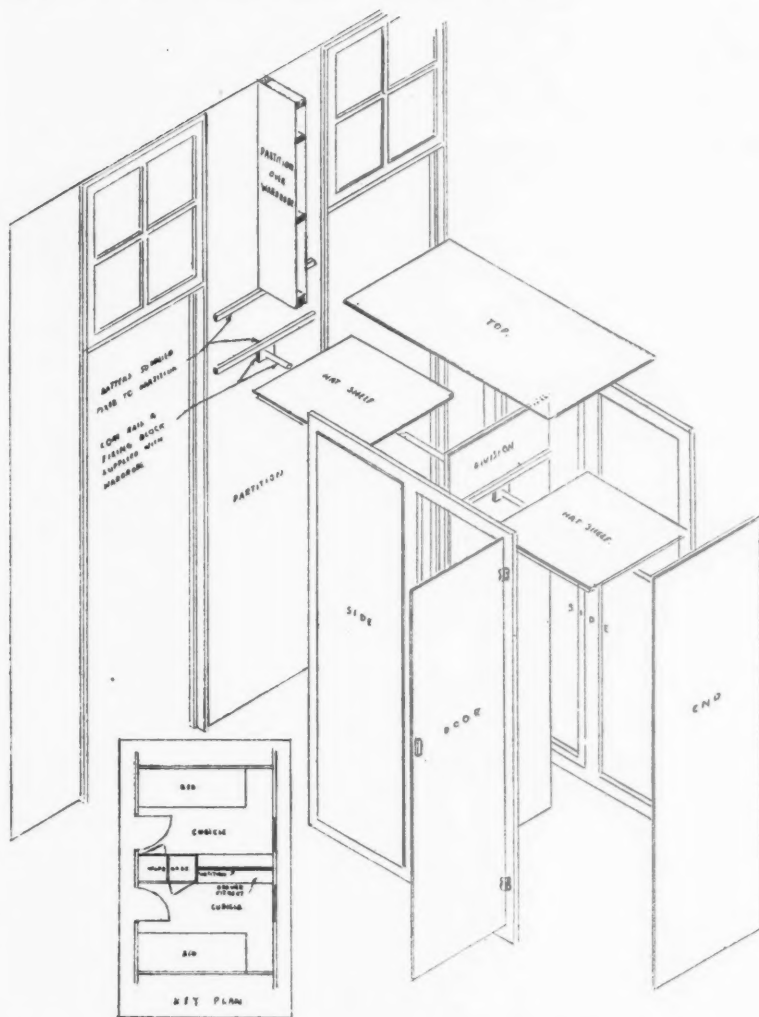
9 Side elevation and section through CORRIDOR.



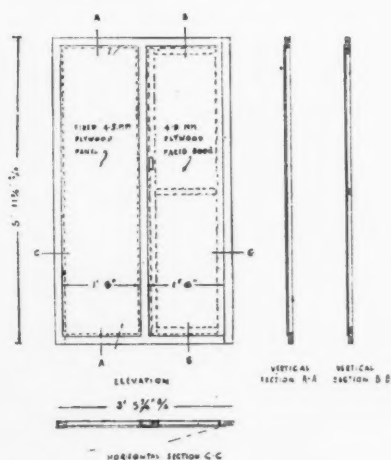
10 Section showing CONSTRUCTION. Note absence of roof trusses and beams.



11



12 Isometric view showing assembly of component parts of WARDROBE fitment



13 Elevation and sections of sides of Wardrobe Fitment.

The axonometric reproduced above (12) shows the parts from which the cupboard fitment is made up and the way they are assembled. On the left (13) is a detail of one of the units of which the cupboard is made up, consisting of one fixed panel and a door, which forms the outer wall of the fitment facing the cubicle. All parts labelled on the axonometric are separately detailed in this way and merely have to be screwed together. The small plan inset (12) shows the position of the wardrobe in each cubicle. The span between the cupboards and the outer wall is taken up by a chest of drawers fitment, built-in on similar lines.



LETTERS

Professor C. H. REILLY.

T. H. D. W. COLEMAN.

C. H. YARDLEY.

EDRIC NEAL,

(Hon. Secretary, Building Technique Group, R.I.B.A. Reconstruction Committee).

J. M. MILNER.

A COUNTRY ARCHITECT.

AN APOLOGY.

SIR,—Please accept my assurance that in my article on the Importance of Group Work which appeared in your issue of February 12, I had no intention whatever of casting any reflection on the town planning abilities of the City Engineer at Liverpool. I am extremely sorry if in endeavouring to define the spheres of architects and engineers an unhappily expressed sentence of mine may have made such a misconception possible; and the offending comments are unreservedly withdrawn. I should like to express my most sincere apologies to Mr. Hamer for any offence which I may have unintentionally caused him.

C. H. REILLY.

[We gladly associate ourselves with Professor Reilly's letter in making the most handsome apology within our power to Mr. Hamer for an entirely unintentional offence. The offending passage was published without any realization of its possible implications.—Ed., A.J.]

P.E.P.

Sir,—I should like to make a comment on P.E.P.'s proposed policy for the building industry, as outlined in a recent issue of the JOURNAL.

The essentially important point is not the degree of accuracy in the estimation of costs, but an accurate estimate of the purchasing power of the public.

Broadly speaking, members of the public never buy articles of inferior quality from choice, but only from financial necessity. It is very widely recognized now that the only reason why people were starved in the depression years was not lack of raw materials, not lack of productive



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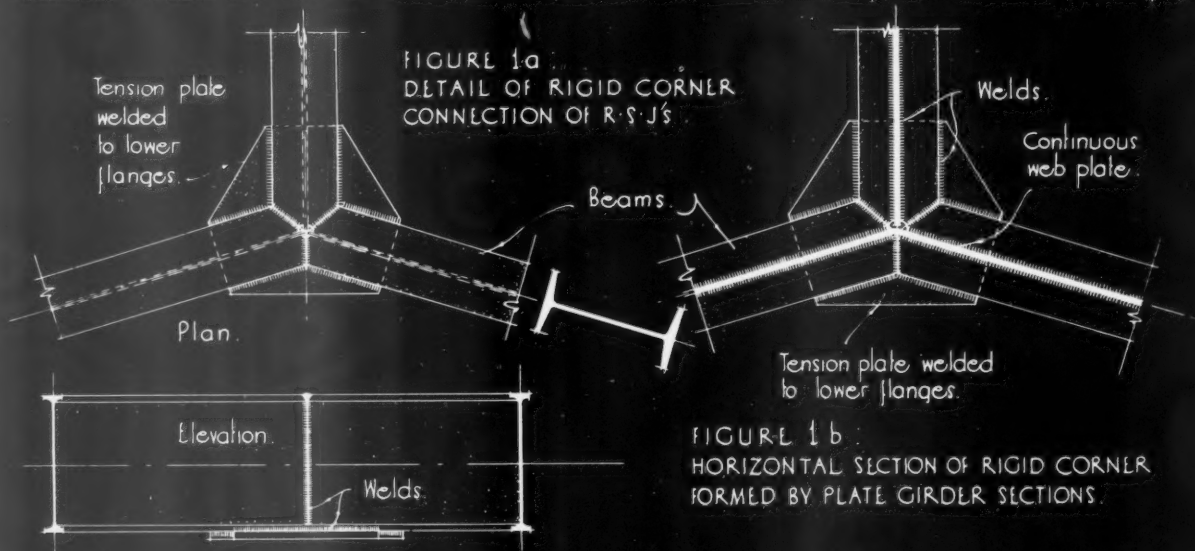
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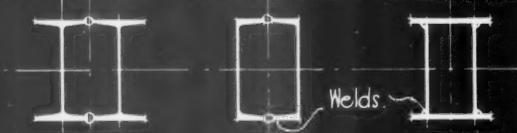
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GENERAL CONSIDERATIONS & PRINCIPLES OF DESIGN IN WELDED STEEL, 16: horizontal frames (b)



2a: Two R.S.J.'s. 2b: Two channels. 2c: Boxed girder.

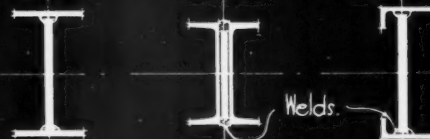


FIGURES 2: EXAMPLES OF CLOSED SECTIONS SUITABLE FOR TRANSMISSION OF TWISTING MOMENTS.

3a: Plate girder.

3b: Stiffened channels.

3c: Plate with angles.



FIGURES 3: EXAMPLES OF SECTIONS WITH WEBS THICKENED FOR TWISTING MOMENTS.

FIGURE 4: DETAIL AT CORNERS A & B OF R.S.J. STAR BEAM (See fig. 2c on Sheet No. 25)

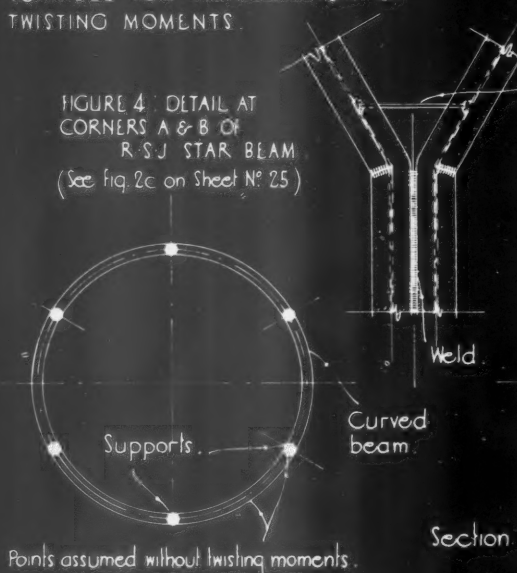


FIGURE 6: CONTINUOUSLY CURVED BEAM.

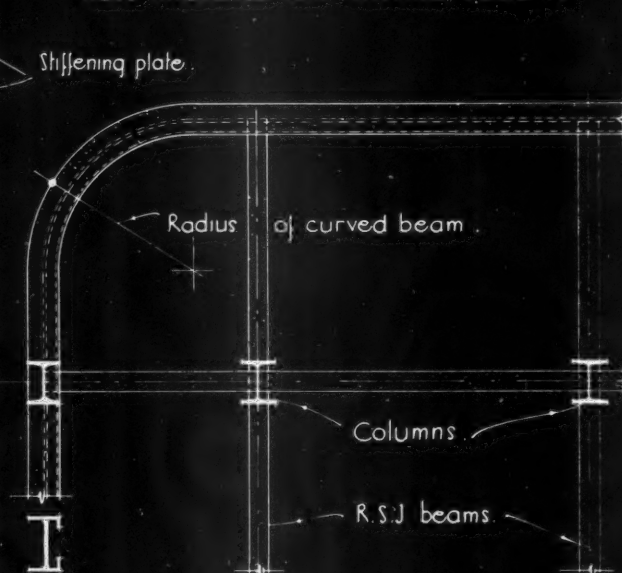


FIGURE 5: TYPICAL APPLICATION OF CURVED BEAM.

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INFORMATION SHEET: STEEL FRAME CONSTRUCTION 70: WELDING No 26.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1

INFORMATION SHEET

• 856 •

STRUCTURAL STEELWORK

Subject : Welding 26 : General Considerations and Principles of Design in Welded Steel 16 ; Horizontal Frames (b).

General :

This series of Sheets on welded steel construction is a continuation of a preceding group dealing with riveted and bolted construction, and is intended to serve a similar purpose—namely, to indicate the way in which economical design as affected by general planning considerations may be obtained.

Both the principles of design and the general and detailed application of welded steelwork are analysed in relation to the normal structural requirements of buildings. The economies in cover and dead weight, resulting from the use of lighter and smaller steel members and connections, are taken into consideration in the preliminary arrangement of the building components in order to obtain a maximum economy in the design of the steel framing.

This Sheet is the sixteenth of the section illustrating general considerations and principles of design in welded steel, and is the second of two Sheets dealing with welded beams on three or more supports not in one plane, i.e. horizontal frames.

Suitable Sections :

Where no twisting moments are to be considered, the same sections are suitable for horizontal frames as for ordinary beams, i.e. R.S.J.'s ; and for heavier construction, plated joists and plate girders can be used. Figure 1a shows a rigid corner suitable for the connection of R.S.J.'s, and Figure 1b one for plate girders. Both these details are applicable to the construction shown in Figures 2a and 2b on Sheet 25 of this series.

Stresses :

The stresses in the flanges are transmitted by butt welds, but to increase the strength a special plate is arranged for the lower (tension) flange. The shear at these points is

usually small, and even thin vertical welds are sufficient to connect them to the web, although they would have to be continuous. If plate girder sections are used, two of the three webs meeting at one point can be formed from one plate, and it is best to choose for this purpose the two webs which form the most obtuse angle.

Twisting Moments :

Sections which have to transmit twisting moments as well as bending moments can be constructed of either a closed section, Figures 2a, b, c ; or with a particularly thick web, Figures 3a, b, c. A suitable application for a section consisting of two joists, toe to toe, would be the frame shown in Figure 2c on Sheet 25 referred to above.

This frame would develop twisting moments only between points A and B, and by building it up from two joists CABD and EABF, this centre part consists of a closed section able to take the twisting moments. By cutting V-pieces out of the flanges and bending the joists on their vertical axes, the two joists can be brought into their positions with a minimum of labour. See Figure 4.

Curved Beams :

Curved beams are subject to large twisting moments, which vary from section to section, and R.S.J.'s are unsuitable except for very small spans. The beam shown in section in Figure 3c, consisting of a thick web plate and angles top and bottom with a flange on the inside of the curve, is suitable for such beams, and an example of such an application is shown in Figure 5.

The calculation can be simplified, as in the circular beam in Figure 6, where for reasons of symmetry, it can be assumed that with equally distributed load no twisting moments occur either at the supports or at the centres of the panels.

Previous Sheets :

Previous sheets of this series on structural steel work are Nos. 729, 733, 736, 737, 741, 745, 751, 755, 759, 763, 765, 769, 770, 772, 773, 774, 775, 776, 777, 780, 783, 785, 789, 790, 793, 796, 798, 799, 800, 801, 802, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 816, 819, 821, 822, 823, 824, 826, 827, 828, 830, 832, 836, 837, 838, 839, 840, 842, 843, 845, 847, 848, 849, 850, 851, 852, 853, and 855.

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Whitehall 3993.

capacity, not the inefficiency of costing systems, but just lack of money tokens.

T. H. D. W. COLEMAN
C. H. YARDLEY

Building Technique

SIR,—The R.I.B.A. Reconstruction Committee has, from time to time, received from the building and allied trades, many generous offers of assistance and co-operation. A number of companies, firms or associations directly or indirectly concerned with the supply of building materials and equipment are considering the application of their products in post-war reconstruction.

In the view of the Reconstruction Committee, the Building Technique Group is the proper group to collect this information, and I am accordingly writing—through the medium of your paper—to invite all those concerned to let me have general information as to the trend of their development work in connection with the building technique aspect of reconstruction. These particulars should be sent to me, c/o R.I.B.A., 66, Portland Place, W.1.

In conclusion, I should like to mention that a number of firms have expressed a wish to co-operate with the R.I.B.A. Reconstruction Committee. This co-operation between architects and industry is regarded as vital by my Committee, but it will be readily understood that my Committee has a great deal of preliminary work to do before it feels confident of being able to play its proper part in such co-operation. At the moment, therefore, we are only asking for information which, without doubt, will be of great assistance to us in our work.

EDRIC NEAL.

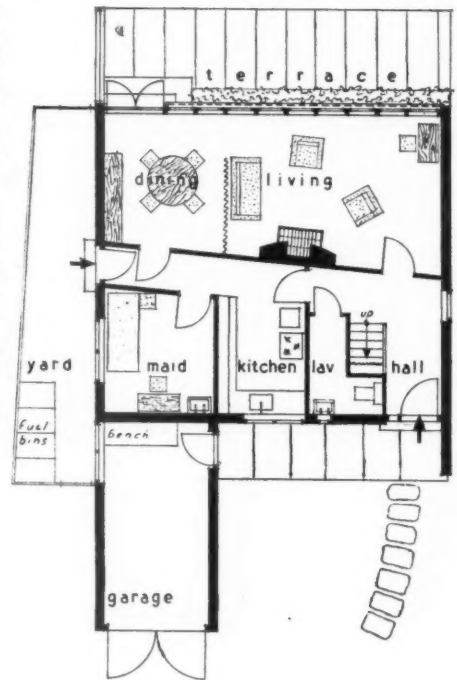
House Owner Replies

SIR,—My attention has just been drawn to the review of my house at Harrow Weald by Professor C. H. Reilly, in the ARCHITECTS' JOURNAL for January 15.

It is certainly an honour that so eminent an authority should single out this house for comment, and it is most gratifying that he welcomes that rather unusual exterior. With regard to the position of the dividing partition, however, I feel that I should like to have the opportunity of explaining its purpose to him but, first of all, since he has most kindly shown some concern as to the normal development of children (if any) in this house, I would hasten to assure him that my two sons, aged 5 and 3, are thriving in every way!

The placing of this dividing partition in a slightly diagonal position in the house, so ingeniously planned by the architect, Mr. Frederick MacManus, and wholeheartedly approved by his client, was dictated solely by the necessity of utilizing to the full every available square foot of space, due to

In his review of the year's work in the New Year issue Professor Reilly wrote: "the house at Harrow Weald, by Frederick MacManus, looks very pleasant and welcoming on the outside, but for no reason except the one just mentioned, the dividing partition which ordinarily is parallel to the back and front wall of such a rectangular building is not so placed, with the result that every room is cock-eye. I should be interested to know whether life is really happy under these circumstances and whether children, if any, are growing up normally." Professor Reilly has been answered in the accompanying letter from the owner of the house, the ground-floor plan of which is on the right.



the narrowness of the site and certain local building regulations.

A glance at the plan will show that if the partition were built parallel to the front and back walls from the existing position at the dining end of the large room, this would enlarge the hall unnecessarily and reduce the living end of the large room to a corresponding degree. Similarly, the converse would entail an appreciable restriction of the size of the maid's room and the amount of cupboard space in the kitchen. It was felt, therefore, that a compromise in the form of a slightly diagonal dividing partition would enable the existing space to be used to the best advantage.

I hope that I now make it quite clear that this design is for a strictly utilitarian purpose. I would like to add that should Professor Reilly find himself in the vicinity of Harrow Weald at any time, he would be very welcome to look over the house, should he care to do so. I am afraid that, until the end of hostilities, I would not be at home to greet him, being on active service, but my wife will do so most willingly. (Incidentally, we are always glad to show the house to people genuinely interested in architecture.)

J. M. MILNER.

Harrow Weald,
Middlesex.

Economy

SIR,—Well! Well! Well! the Directorate for Economy have broken silence as seen in the illuminating article in the JOURNAL for January 29, under the heading "Economy." The opening suggestion is an inspection

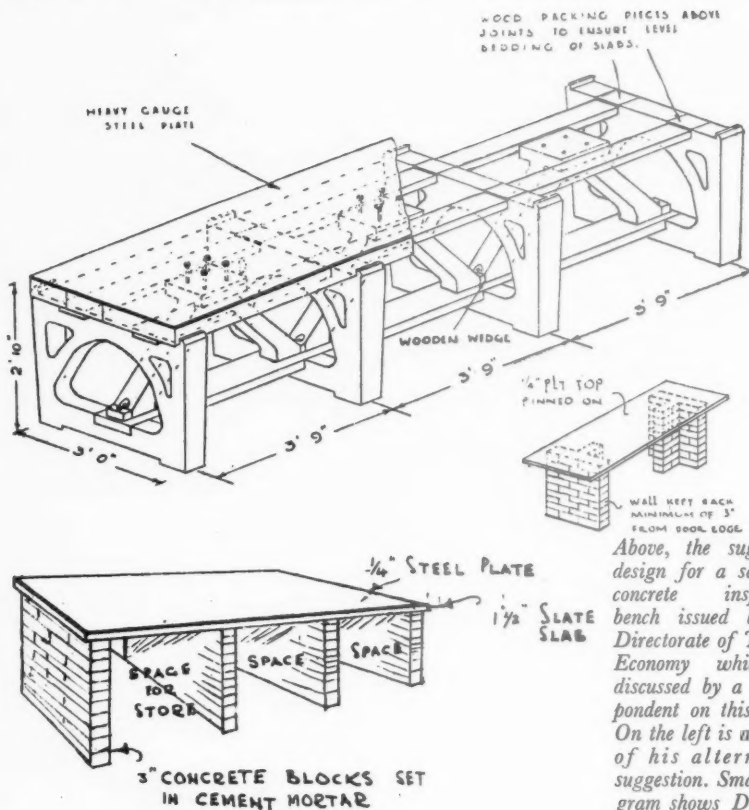
bench, presumably for heavy articles, though this is not stated; anyhow for a bench 12 feet long there are four elaborate cast concrete supports with three bearers and struts almost completely filling the underside of the bench so that no storage space is available, the top appears to be covered by a concrete slab 2 in. thick, 12 feet long and 3 feet wide upon which is placed a heavy gauge steel plate, the culminating factor being that the cast concrete parts are to have an aggregate of sawdust.

Really, Mr. Editor, if this is to be taken as an example of what this most expensive department can produce in twelve months someone more able than myself should take the matter up.

In the first place the so-called "Inspection Bench" is to be set up anywhere in the Kingdom, we presume, and the cast parts are to be manufactured at the centre. Has any consideration been given to the cost of transport or the breakage that is likely to take place in the transportation of such a fragile material as sawdust-concrete? Further mention of sawdust-concrete will be made later, and the consequent loss of time in obtaining new parts and when eventually erected the result is sawdust aggregate concrete and steel slab top?

Might the following suggestion be considered an alternative, this having been in use in many shops for long years.

The advantages of this suggestion are economy in materials, economy in transport, ease of construction, no fear of breakages in transit, cleaner in use and most valuable space under the bench and no delay in waiting for materials as concrete blocks or, alter-



Above, the suggested design for a sawdust concrete inspection bench issued by the Directorate of Timber Economy which is discussed by a correspondent on this page. On the left is a sketch of his alternative suggestion. Small diagram shows Directorate's brick bench.

natively, bricks are everywhere obtainable locally.

Suggestion No. 2. This is open to the same criticisms as the former. Any housewife who used this sink would very soon want the blood of the architect who designed it. Imagine the best cast concrete sink in the world, even if it has not sawdust aggregate, the rough surface would certainly retain all the grease, and the space under the sink is not available for storage. No doubt for good reasons no suggestions are put forward as to the probable cost of such a contraption, but the odds are it would cost at least twice as much as the earthenware sink set on concrete blocks as described above and would leave a storage space below the sink and would be much more easily kept clean.

Now the crowning glory of all, the roof truss built up of small timbers. This, surely, is not put forward as something new; examples of this type of roof can be seen in cow houses in many parts of the country. Should you have any difficulty in discovering this a list of places will be willingly supplied.

Now, Sir, the cutting down of timber and suppression of skirtings, architraves picture rails, etc. My dear Sir, you have only to look in your own JOURNAL to see that all modern buildings have been so treated for years.

Then the dresser; this is put forward

as a master plan. Well, Sir, what are the advantages of that you describe over the pre-war type. You have certainly lost the doors to the top shelves and you may have reduced the timbers slightly and in place of panels to the lower cupboard doors plywood doors are shown. If you omit the top doors you most certainly will not please the housewife, for if you only knew it the top shelves are stored with the best crocks, and are only occasionally used, and if there are no doors those crocks are going to get dusty, and don't forget that; as regards the plywood doors you surely know these are not a new idea.

Now as regards the suggestion of the average waste of 33 1/3 per cent. to 50 per cent. timber, all managers of factories spoken to on this matter ridicule the suggestion and challenge the statement; as regards the suggestion of waste in plywood, an example where not one per cent. of waste took place in the panelling of a Council Chamber and Assembly Hall and Foyer can willingly be shown; in fact so little was the waste it was not possible to find a strip 3 feet long and 4 inches wide which was required at the completion; of course this result was achieved by the careful use of standard sizes and fitting them to plan. Thirty per cent. of waste? Ridiculous!

Now concrete made from this so-called waste from timber. Is this a new

discovery, if so will you please look up the records of experiments carried out by the Ministry during the last war, when floor joists and lintols were used in some of the housing schemes, particulars of this can be supplied if it is impossible for the research department to find them. The results were not satisfactory except that it did, perhaps, tide over a period when timber was short, but the result was that many of these joists and lintols had to be removed after the war and replaced with timber. No, Sir, sawdust as the aggregate for concrete is not good for many reasons that should be obvious to all.

We are now told that the research department are now employed on the details of windows. Well, before they produce what they may consider the last lesson, might the suggestion be made that they examine the types in existence and ask for suggestions from the country's architects and builders.

A COUNTRY ARCHITECT.

LITERATURE

TIMBER ECONOMY

Wartime Building Bulletin No. 19: Economy of Timber in Building. Issued by the Building Research Station of the Department of Scientific and Industrial Research. H.M. Stationery Office. Price 1/- net.

Less timber must be used in building. The object of the Bulletin is to show how this can be achieved. The general approach to the problem is given under five headings:—1. Omission of all unessential features. 2. Use of alternative materials. 3. Better use of material and economical design. 4. Designing so that stock sizes can be utilized. 5. Use of substitute types of timber in place of those normally used for particular purposes.

Various uses of timber in which considerable economies could be effected are then listed and a section is devoted to each main use.

Some of the suggested recommendations could be applied without any difficulty. In other cases there would have to be a proper appreciation of the problems by the designer and collaboration by the manufacturer or contractor. A number of illustrations show designs for benches, shelves, shutters, joinery fittings, doors, storage bins, etc.

Apart from many detailed items of interest the chief points which arise are:—

1. The need for reviewing all designs to see how timber content can be reduced. This involves the examination of actual requirements based on strength and other factors. Information now available on timber grading makes it possible to calculate strengths much more accurately than has been

customary and should lead to a revision of ideas previously based solely on tradition.

2. The important part which plywood can play in modern building. Under present conditions very considerable economy can be obtained by substituting plywood for solid timber.

3. For temporary timber work, such as shuttering for concrete, standardization is important so that a maximum re-use can be obtained with the minimum of alteration to the shuttering.

4. All designs should be related to available stock sizes. An appendix gives details of the stock sizes of plywood and solid timber available at the present time.

QUANTITIES

Elements of Quantity Surveying, by Arthur J. Willis, F.S.I. Crosby Lockwood. Price 15/-

Most educated people could write at least one book on their own subject, but to recapture memories of one's student days, to anticipate the difficulties and give the answers, demands special gifts which the average professional man does not possess. Mr. Willis, apart from being a practical Surveyor, is an Author* and a Lecturer and Examiner of wide experience, and it is this experience which gives his books their exceptional qualities.

In *Elements of Quantity Surveying* Mr. Willis sets out "to assist a student to good grounding in first principles," and in this he has most admirably succeeded. At one and the same time he has managed to write a technical book useful for examinations (especially the Intermediate Examination—Quantities Sub-division—of the Chartered Surveyors' Institution) and which gives the student a clear picture of the purpose of a Bill of Quantities and of normal office procedure.

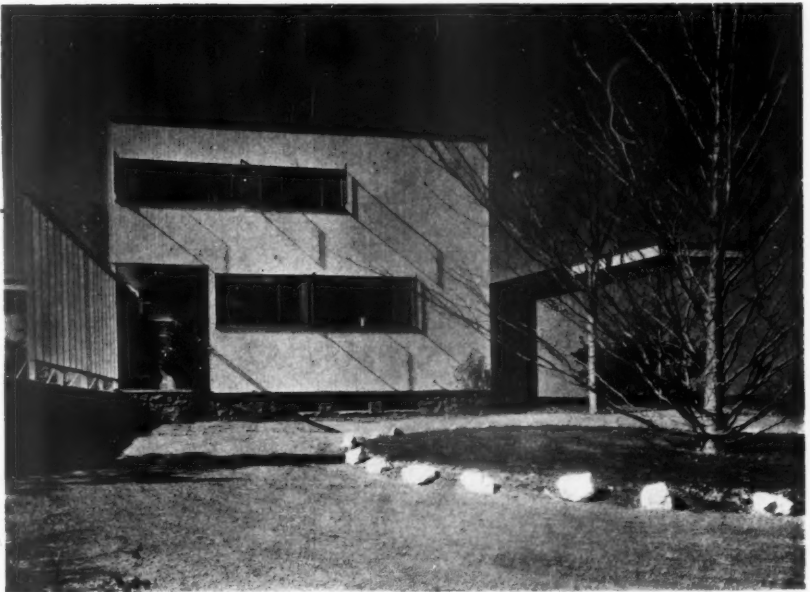
It is worth mentioning that examples of Taking-off, Abstracts and Bills have been reproduced in script; a small point perhaps and one which apparently raised some criticism of the first edition, but it illustrates Mr. Willis's refusal to treat this technical subject in a manner devoid of reality, and to my mind helps the student to associate theory with practice to no small extent.

Briefly, the author assumes on the part of the reader only a normal knowledge of mensuration, shows how this knowledge must be applied, explains the setting down of dimensions and the rules for taking-off, and then proceeds to go through the process of simple taking-off in all Trades and of working-up the dimensions into Bill form.

In conclusion I may say that I am keeping a copy of the revised edition in my own office for the juniors to refer to, and can in all sincerity recommend it as a work of outstanding merit.

O. A. DAVIS.

*By the same author. *More Advanced Quantity Surveying*.



Sweden, Germany, Russia, France and England have each in turn provided refuge for modern architecture in its flight from war or dictators with ideas about the sublime. To-day Harvard University can be said to be the world's headquarters of the modern movement (a thing which, if he knows it, probably surprises President Roosevelt), and from Harvard, its environs, and its dons, there seeps a steady trickle of buildings which are interesting as well as new. One fairly recent addition was Walter Gropius's own house(1); here is another, by Professor Walter F. Bogner, of the Harvard School of Architecture.

H O U S E L I N C O L N, M A S S.



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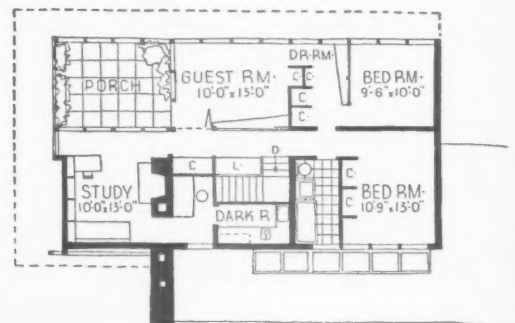
BY WALTER F. BOGNER



HOUSE, BY WALTER F.

GENERAL—In designing this house for his personal use, Professor Bogner, of the Harvard School of Architecture, had two main considerations to bear in mind. Firstly, he was building with restricted funds and, secondly, he wanted to show the advantages of a house of modern design over an equally inexpensive one of traditional character. In designing the interior of the house the architect has sought to convey an atmosphere of openness to out-of-doors, whilst at the same time preserving facilities for privacy and concentration, as can be seen in the illustration of the living-room with its library alcove.

PLAN—Flexibility in the use of space was necessary for a family of three and for the occasional entertainment of a number of guests. The living-room was therefore planned so that it could be divided, as the occasion demanded, by a screen of wooden strips, the north-east bedroom was arranged to fulfil the dual purpose of a bedroom and of Mr. Bogner's dressing-room, and the scullery to serve also as the maid's bathroom. Accommodation on the ground floor consists of a combined living and dining-room, kitchen, scullery and garage, and on the first floor there are three bedrooms, a study and a dark room. There is a porch adjoining the guests' bedroom



3, 4 and 5, the living-dining-room. The points of view from which the photographs were taken are shown on the ground floor plan. 6, view from south-east.

L I N C O L N

F. B O G N E R

from which excellent views of the surrounding country can be enjoyed.

CONSTRUCTION AND FINISHES — Walls are built of concrete blocks, waterproofed, and surfaced externally with redwood. Internally they are lined with wallboard or plywood, and the floors also are of plywood covered with felt, carpet or linoleum. The roof joists and boarding are surfaced with tar and gravel.



5



6

ON THE AIR

In the B B C Series Making Plans a discussion was recently broadcast on the Building Industry by three of its most prominent members: Mr. Hugh BEAVER, Director-General, MOWP, and Chairman of the Central Council of the MOWP; Sir George BURT, Chairman of John Mowlem & Co., Ltd., and Mr. Richard COPPOCK, General Secretary of the National Federation of Building Trades Operatives. Verbatim report appears below.

Beaver: I am very glad we three meet this evening to discuss building. It has surprised me that amid all the talk of planning and post-war development and the rest, there has been so little—in fact, nothing—said about building. No builders, no planners! What the country wants to know is, "Are we going to be able to do all the building and construction that will be wanted after the war? That's the task of the building industry."

But first, what is the building industry? In normal times the industry itself consists of well over a million and a quarter men—the architects, civil engineers, surveyors, a host of other technicians, and the operatives. That alone is a vast section of our working community, but in addition, closely dependent on the building industry, are the countless satellite supply industries—producers of thousands of millions of bricks and tiles, cement, timber, building plant, equipment, heating appliances and so on. In fact, the number of workpeople whose livelihood is dependent on the health of the building industry is almost impossible to calculate.

So I say that when you plan your rebuilding of cities, your new roads, your factories and so forth, you must also interest yourselves in the problem of *building* them. For you, the public, will expect them, and you will have to pay for them. I therefore ask, "Is all well with the building industry? That is to say, with the builders and contractors, the operatives and craftsmen, the specialists? Are they organized and in harmony? Are they going to build better, faster and cheaper? Were they all right before, or do they need to put their houses in order?"

For example, the curse of the building industry is casual labour, and the average percentage of peacetime unemployment is

enormous. We allow bad weather to stop some building work. We concentrate our efforts on the summer months and slacken during the winter. Our building methods compel contractors to crowd on speed during short periods, so that large forces of labour are suddenly taken on, and just as suddenly stood off. We must find a cure for this evil. Well, I have on my left Sir George Burt, who is a civil engineer and a builder—an employer of labour; and opposite me Mr. Richard Coppock, a sturdy and forthright spokesman for the operatives. I very much doubt if they will agree, unless they finally agree to differ. We will see.

A lot of people, you know, Sir George, don't think that the houses of the last generation are altogether a credit to anyone.

Is it true that workmen could work harder than they do? Some people, Mr. Coppock, say that that is possible.

And as for the engineers and architects? Are they planning and designing efficiently and economically? Every builder and contractor and every workman will, I know, at once reply that they are sick of endless changes of plans during construction.

Well, are these complaints true? If not wholly true, are there still things to be put right, if we, the builders, are to be able to put into operation the plans that will be made by the planning experts?

I think there are a good many improvements, some vital, needed, and I believe we could ventilate some of them tonight. Briefly, what we want, I believe, is:

Better planning by the architect and the engineer;

better management by the employer;

better work by the operative;

certainty of employment for all.

And why can't we get them?

Burt: Well, to begin with—(both at once start to answer.)

There's no reason why we —

Beaver: I say, one moment, Mr. Coppock! Shall we let Sir George Burt say first what he, as a contractor, thinks?

Burt: Well, to begin with, I say that if replanning is to be really effective, it obviously must be a long-term policy—not a policy to be chopped and changed by the requirements of party politics. And it must be on a national scale, with a carefully thought-out programme of work adjusted to what the building industry can perform, with a review each year of the man power and materials needed to carry out the programme. In the last war, and in this one, artificial shortages of classes of labour and types of materials have been caused by just this lack of foresight and elementary knowledge. A long-term policy such as I have suggested would give the building and civil engineering industries what they have always lacked—some prospect of continuity of employment.

It is said comparisons are odious. But when I went to America soon after the last war, I couldn't help being struck by the essential difference between building job organization there, and what was, and is still, to a large extent, the custom in this country. What very often happens in this country is that the plans have to be worked out during the course of the contract, whereas what they do in America is not to start on the job until they know all the details are worked out and plans prepared. In America—before the work was started—the architect or engineer, the main contractor and his sub-contractors all spent a considerable time in drawing up a considered programme, to which each could really subscribe. As a consequence, one saw buildings going up at speeds undreamt of in this country then, and at the same time relatively more cheaply.

Coppock: When the Americans say that they build a factory in nine months, they don't really mean that. Many months are spent sitting on the plans, and it is perhaps eighteen months or more from the start of the plans to the finish of the job, although the actual building operation may

have taken them only nine months. And let me remind you that, in *this* country, we have done some of the most rapid jobs that have ever been done. We did a ten-million-pound job in twelve months, and we have done a thirteen-million-pound job in sixteen months.

Burt: At all events, under the American system the contractor is able to co-ordinate his work and plan the sequence of it that his operatives should know that there is a real prospect of continuous employment throughout the job. And to get that, I say, there *must* be planning and thought-out progress.

When the contractor or builder has done his charting and planning, he turns next to what he can do. Take my own case: I know what time I have to finish the job by—it's all in the contract, and I know exactly how many rods of brickwork and yards of concrete and so on that have to be done in the time; and then I try to run the job so that I never have anything more than the right number of men to complete the job in the time. I prefer to have twenty men employed for six months, rather than, say, forty men for three months. One of the biggest troubles is with the architects or the engineers—and I have fallen out with them over it dozens of times—and that is, shortage of drawings to start with, then the sudden release of drawings while the job is in hand. Instead of getting our plans with the contract, we get them from time to time—often in big batches. Immediately the plans are received then everybody wants to rush the work. And then comes the pressure to put on more men, which is economically quite unsound, and then inevitably a pause waiting for more plans; this entails the dismissal of scores of men, creating just that lack of continuity of employment they ought to have if they are to be expected to give their best output.

Perhaps the architect or civil engineer will say, "Why haven't you increased your bricklayers?" and I'll say, "I know if I do increase them beyond a certain point, there isn't the work for them to do for more than, perhaps, a few days, or at most a few weeks." The men aren't fools—they know as well as you do—and so they don't work. On the other hand, if I put on half the number of bricklayers I can still complete to time—and what's more, these men know they have so many months of certain work in front of them. That's the way to do the work efficiently—organization from start to finish.

Coppock: Well, damned few do it.

Burt: That's because you only pick the builder who tenders at the lowest price—the fetish of the acceptance of the lowest tender.

Coppock: That's the curse of the industry.

Burt: It's too little recognized that an experienced builder has a great deal to contribute to good organization but rarely, if ever, is any notice taken, in awarding contracts, of the builder's organizing ability and reputation.

It has been said of building that a man deserts his usual buying instincts. When a man buys a pair of boots he expects to pay more for quality than for mediocrity, but when it comes to a building, the basic tests of superiority, such as the record and reputation of the builder, go by the board. The client will invite all and sundry to enter the competition, and the lowest bidder may more often than not be inexperienced and ill-qualified to do the job. In these circumstances it can't be expected that the result will be satisfactory to anyone, and it will in the long run be the building owner who suffers most.

The war has, at any rate, brought some reforms in the industry. There is the guaranteed week for one thing; then welfare conditions generally have been brought up to the standard provided by good employers before the war.

Coppock: Much above it.

Burt : Well, you're entitled to your opinion.

Coppock : Yes, the change is revolutionary and improves production.

Burt : But there's another thing that needs doing—and that's some definite agreement as to what constitutes a fair day's work for a fair day's pay. And, equally important, what constitutes a fair day's pay for a fair day's work?

Coppock : Surely that can be negotiated.

Burt : To what extent the reforms will survive after the war is, of course, impossible to forecast, but personally I hope that all of them have come to stay.

To sum up: If the building industry is to render its proper service to the public, then long-term planning, with the prospect of continuity of employment for some years, is vital. At the same time the industry must put its house in order, so that complete co-operation is established in every branch of it.

Beaver : Well, it's very interesting, Sir George, to hear you say that. You say that you must have the plans before you start working, you agree that you must have organisation, and you agree that there must be continuity of employment. Will that produce the goods? What is your view, Mr. Coppock?

Coppock : My concern is with the great army of workmen who will be essential for the rebuilding of Britain. Nearly everybody has seen the havoc wrought by aerial bombardment, and we all know that there's a lot of work to be done. The peace that is to come can only be won if the best minds of the nation are applied to sound building construction.

Here is my first point. There's no industry in the country that can so quickly revive the economic position of the nation as the building trade. That's because—as was said earlier—it ramifies so widely. If you take materials, transport and everything into consideration, 80 per cent. of the costs of building are labour. The price of the brick is not the clay, which might cost a thousandth part of a penny, but the making of it: the cost of the coal to burn it, the cost of the labour in the brickfields. The cost of the paint isn't the cost of the pigment and the oil, but the cost of its manufacture. The cost of the window is not the cost of the sand and the silica in the glass, but the making of the glass, and the cost of the machinery to manufacture the glass, and the oil and the electricity to drive that machinery. I want that point to be quite clear. And so, in consequence, this high proportion of building costs being labour costs, means that money is distributed very widely indeed throughout the nation when building construction is in full swing. One person in every six in this country is dependent, in one way or another, on this one industry.

Now, in war-time, the Government have given all sorts of guarantees to the trade unions as to what will happen when the peace comes. Practices that have been dearly won by the trade unions are being surrendered now, and the Government have promised to restore these practices when victory is secured. But not so in the building trades. The position so far as building trade workmen is not quite the same. We have in the building industry, I am told, passed the peak production necessary for war conditions, and building operatives are now being transferred to the Forces and to the making of munitions. After the war they will have to be got back, as great demands will then be made on the productive capacity of the building industry and the workmen in that industry will be required by the hundred thousand. It is essential that the same securities that are being given to other trade unions in wartime should be extended to the building trade unions in peacetime. If the industry is to be responsible for the rebuilding of Britain during the post-war years, it is obvious that the Government must accept some responsibility.

The industry must provide that every man employed shall have a guaranteed week. It's impossible to consider the building industry as properly organized if one single man who's fit for work is unemployed. And the Government must make this possible.

Beaver : Well, if something like the Essential Work Order were to be continued with its guaranteed week and a greater assurance of continuity of employment, that would also involve a certain amount of restriction both on the men and on the employers. What about that?

Coppock : It may be necessary to do that in the interests of the building of houses for the people. Housing is absolutely essential and can't be held up while industrial organizations settle their differences. It's just as essential for people to have houses in peacetime as for the Army to have munitions in war.

Beaver : If you are to have labour demanding—and rightly demanding—and getting, a guarantee that carries with it a certain amount of restriction of liberty of action, if you are going to have a plan of building you must have an organized building industry to do the work. That means some control on the entry into the industry and, what's more, some control on exit from it. People can't leave it just because they have an offer which attracts them elsewhere. Otherwise we never know what labour force we have to build with.

Coppock : I accept that. I think that all building trade workers should be registered.

Beaver : But I don't know whether the builders would accept the Essential Work Order or something like it extending over into peacetime.

Burt : Speaking for myself, I feel the Essential Work Order, or some variation of it suited to peacetime conditions, is fundamental.

Coppock : You mean Government control.

Beaver : H'm! That's going into things rather deeply for the purposes of this discussion, I think (*Pause*). But there's another point that we have to consider, how to get better output in the future than there has been in the past.

Coppock : Production can be assured by a social consciousness developing within the building trade workmen, and a realization that the question of profit should be a mere incident, but that the question of service is the all-important factor. It may be necessary completely to revolutionize the methods that have been in operation for so many years, and employers will have to appreciate that it is not a question of profits but of national service.

Good and substantial buildings are required: the day of the "jerry builder" has gone; the charging of huge interest to people purchasing buildings has gone; huge profits accrued in the building interest by people not even handling a brick must go. There must not be fortunes made out of the devastation created in this country, and the national control of the entire industry is, in my mind, essential.

Burt : Then what are we to do to rid the industry of the curse of indiscriminate competition—contracts below their real value, so that the contractor must seek to recoup himself in some way or another—contracts often so one-sided that it is impossible to apply them literally—contracts that seek to place all risk and all responsibility on the contractor? These things are not conducive to either confidence or efficiency.

Coppock : The competitive system which hitherto operated has not operated in the best interests of the industry. As a matter of fact, very often the employer whose contract or tender was accepted was quite the worst type of employer. I want to see a new

form of contract. I don't want the workman's productive power to be the gamble of the employers.

Beaver : Well, it's very interesting to me to have you both agreeing on this. But I'm bound to say that I don't yet see very well how we're going to avoid competition in some form or other. I agree there must be prevention of the sort of competition that gets down to the cut-throat plane. I wonder if we could have some form of universal standard-priced schedule.

Coppock : Myself, I believe that the "cost-plus" system with scientific management is the best. But possibly we're untrained for that particular system. The point you have raised is certainly one I would subscribe to. I think there should be a scheduled cost of all work, and the schedule should be known to the persons concerned.

Beaver : That would not give what is necessary, namely, a method of placing contracts otherwise than by pure selection. In our present system there must be some mechanical, I would almost say fool-proof, method of picking your contractor; otherwise, as I know only too well, the lowest motives are ascribed to you although you are acting in the best of faith.

Coppock : You take a contractor for his efficiency; and if incidentally his workmen are more efficient and do better work, if the price is right, why not have the most efficient contractor who does the best work? It does at least ensure that the craftsmen and the attendant labour will be of the best quality.

Beaver : I know, but it's not easy to get the ideal. There's just another point I think we ought to remember. If the industry itself agrees—as I hope it will—that there should be a guaranteed week, that means that the employer will pay operatives when they are stood off on a job. But ultimately it is the public that pays.

Coppock : True, it doesn't matter how it's organized, the public ultimately pays for everything. They will certainly pay less when the booms and the slumps in the industry have been reduced to a level keel. What we have to do in the industry is to determine our policy, and budget each year for both the materials and labour necessary for the production of the building required—and so on each successive year.

Beaver : Yes, we must have a programme of work based on labour and materials. We must have neither too much labour nor too little, we must have neither too much production of materials nor a shortage.

Coppock : Quite. And, of course, as I said earlier, the industry is not organized if one fit man—one man who is fit to work—is unemployed.

Burt : And certainly not if 15 to 20 per cent. are always unemployed. What are we going to do to end the casual nature of the building trade?—employment is casual for the operative and the employer alike. It is subject to booms and depressions, and it is, above all, seasonal.

Beaver : There hasn't been a time since the last war when there hasn't been heavy unemployment—there were 220,000 unemployed in the building industry in July, 1939—nearly one out of every five. And the trouble is that the outlook of both employer and employee alike has always been conditioned by this position. What other industry is there where an hour's notice is quite common practice?

Coppock : The question of production is the key to this problem. Production cannot be guaranteed whilst the present casual nature of employment is operative in the building industry. Continuity of employment is the greatest factor for output. Men who have been used to receiving unemployment pay or public assistance have not produced to their greatest capacity, for they knew

that at some time they would become unemployed and they endeavoured to make the job last as long as it possibly could. As the war is taking the total energies of the nation, so, in peace, will the total energies of the building trade's operatives and the employers and all persons connected with the building industry be concentrated on the fact of rebuilding this country of ours. It is essential that the people shall have houses, that the commercial and civil buildings shall be erected; and our men know that so long as their living is guaranteed each week they can deliver the goods necessary for the rebuilding of Britain. And the planners must now be ready so that their plans are ready for the contractors. The workers will be ready, willing and desirous of using their best endeavours to rebuild Britain.

Beaver: Yes; but still, when all is said, you can't have organization without discipline; and you can't have discipline without some sort of control.

Coppock: Well, it is necessary to accept control to win the war; in the same way we must accept some measure of control to win the peace.

Burt: Hear, hear!

DIRECTORATE OF POST-WAR BUILDING

Details of the Directorate of post-war Building were issued by the Ministry of Works and Planning last week. The Ministry's statement is printed below.

Now that building for war has reached (and perhaps passed) its peak, the leaders of the industry are beginning to see the gravity of their post-war problem. That problem, put very simply, is to change, in the shortest possible time, rapid contraction into rapid expansion; to turn enforced retreat into orderly and efficient advance. Everywhere people are getting together to discuss how this is to be done: the great professions of building; the makers of materials, component parts, appliances; the fuel and power interests; the many official and unofficial associations for trade protection and trade research. Day by day more schemes are drawn up, more committees are formed, all with the same object of preparing for the gigantic task that lies ahead.

It has often been complained in the past that the development of modern building technique is impeded by the lack of liaison and general direction. The problems of one branch of the industry are ignored or misunderstood in another; the fruits of admirable researches are dissipated because there is no organized linking-up with the man on the job. To-day, the need for co-ordination is greater than ever. When committees are set up, when enquiries are instituted, too often there is no clear conception of the end in view, no proper knowledge of what other people may be thinking or deciding.

To meet the general demand for a central rallying-point, the Minister of Works has

created a Directorate of Post-War Building. It will be the object of the Directorate to co-ordinate and unify the scattered activities of existing groups and committees, to simplify, to regulate and, as far as seems necessary, to direct.

It is realised that this work is urgent. When civil building starts again after the war, the time for joint consideration of these problems will have passed. Moreover, everybody now looks forward to some measure of control over post-war building; and there is anxiety that unless this control is framed with complete understanding of needs and capacities, its harmful and obstructive effects may largely cancel out the good. To make the necessary arrangements without diverting energies from the war effort will be difficult, but the Minister of Works is confident that it can be done.

For the moment, the Directorate consists of a small skeleton staff of 14 people. Had the war situation been less pressing a more substantial organization might well have been set up, since the urgency of the problem is now generally admitted. Most people remember the babel of contradictory information and partisan demands that followed after the last war, and are willing to go to great lengths to prevent the same conditions occurring again.

The Directorate of Post-War Building will approach the task not through research or experiment of its own, but by collating existing information, and co-ordinating all activities pursued elsewhere. It hopes to give stimulus, direction and unity to efforts that are now hesitating, fragmentary and widely dispersed. Its field will cover the whole technical side of building, and will include the planning and design of the many types of buildings; the latest practices in construction; the architectural use of materials (and particularly of the newer materials, about which much has still to be learned); the most efficient methods for heating, ventilating, lighting and sound-proofing a building and generally giving it all the advantages that modern science and production technique have put within the reach of man.

The work will be done through groups and committees, mostly actually or potentially in existence. Where existing committees are appropriate they are formed into Study Committees within the Ministry's scheme. Where necessary, new Study Committees may be created at the invitation of the Ministry, either by Government Departments or by professional bodies, research associations or other outside organizations which are most concerned and most suitable. The body responsible for forming such a committee is described as the Convener. Only in exceptional cases, where no suitable outside body exists, will the Ministry itself convene a committee. Fifteen such Study Committees have now been discussed in detail and agreed; 11 are actually formed or in process of formation, and several are at work. The Minister is responsible for securing complete liaison between the various committees; and he had arranged for co-ordination and policy to be secured by a main Co-ordinating Committee and three Policy Committees. All the major interests affected will be represented on the Main Co-ordinating Committee, including the Ministry of Health, the Scottish Office, the Royal Institute of British Architects, the Institution of Civil Engineers, the Department of Scientific and Industrial Research, and the British Standards Institution.

The three Policy Committees between them cover all subjects for which Study Committees have been appointed, and consist mainly of the Chairmen of the relevant Study Committees. Policy Committee for Design has Sir Giles G. Scott, R.A., P.P.R.I.B.A., as its Chairman. The scope of this Committee includes the planning and design of all types of building and the architectural use of materials, old and new. The Policy Committee for Structure covers the construction of all parts of the shell or carcass of a building, including the physical and chemical properties of the materials used. Its Chairman is

Mr. Ralph Freeman, M.Inst.C.E. The Policy Committee for Installations covers the equipment and internal finishings of the building carcass, including mechanical, electrical and other installations. The Chairman of this Policy Committee is Mr. G. Grey Wornum, F.R.I.B.A.

A Director and three Assistant Directors have been appointed. Sir James West, O.B.E., F.R.I.B.A. (Chief Architect of M.O.W.B.) is Director in general charge of the Directorate and, as such, Chairman of the Executive. Mr. John H. Markham, F.R.I.B.A., Assistant Director (Technical), generally superintends the necessary technical studies on both the architectural and engineering sides.

Mr. Christian Barman, F.R.I.B.A., Assistant Director (Administrative), is responsible for the appointment of committees, for programmes and terms of reference, for inter-committee publicity and reports, and for the preparation of all technical matter to be issued. Mr. T. S. Tait, F.R.I.B.A., Assistant Director (Standardisation), directs all work of standardisation as applied to design, planning and materials used in building. Mr. F. E. Towndrow, A.R.I.B.A., has joined the Ministry as a member of the Directorate staff on the architectural side, and the engineering and maintenance aspects are covered, so far as the Ministry itself is concerned, from its large Engineering and Maintenance Departments under Mr. A. G. Ramsey and Mr. H. Ryle.

That the Ministry of Works should initiate this work was inevitable. The Ministry is the great building department of the State. It is responsible for the employment of a total labour force of over 110,000 men supervised by a professional and technical staff of 3,900, in addition to some 250 outside* firms. On maintenance alone it will be spending this year 3½ million pounds for the upkeep of some 20,000 buildings. But the Ministry's responsibility goes beyond the execution of actual building work. It is responsible to the Government for the volume, speed and efficiency of all the building in the country. It is felt in the Ministry that if the task is hard, there is also an unprecedented opportunity. It is next to impossible to make improvements to a machine that is turning over at full speed; and that, for the last twenty years, is what the building industry has been doing. Now when the mechanism of civil building has almost stopped, comes the chance of a general overhaul; past experience can be reviewed and new ideas examined and tried out. It seems clear that if all those engaged in the industry can pool their knowledge now, regardless of narrow individual interests, building in this country after the war should give better value for money than has so far been offered in this country or anywhere else.

* These men are not employed by the Ministry but by, and in conjunction with the firms referred to.

R.I.B.A. RECONSTRUCTION COMMITTEE

A meeting was held at the R.I.B.A. on Thursday, March 5, at which reports of progress made so far by various sections of the R.I.B.A. reconstruction committee were read to members and comments invited. Several distinguished visitors were present, including Sir Ernest Simon and Mr. E. Dudley Stamp. The following made reports on behalf of their groups:

Howard Robertson-	Policy.
W. R. Davidge	- Town Planning and Amenities.
H. Robertson-	- Building Industry.
J. Alan Slater	- Building Legislation.
Darcy Braddell	- Professional Status.
M. Neel	- Building Technique.
John Gloag	- Public Relations.

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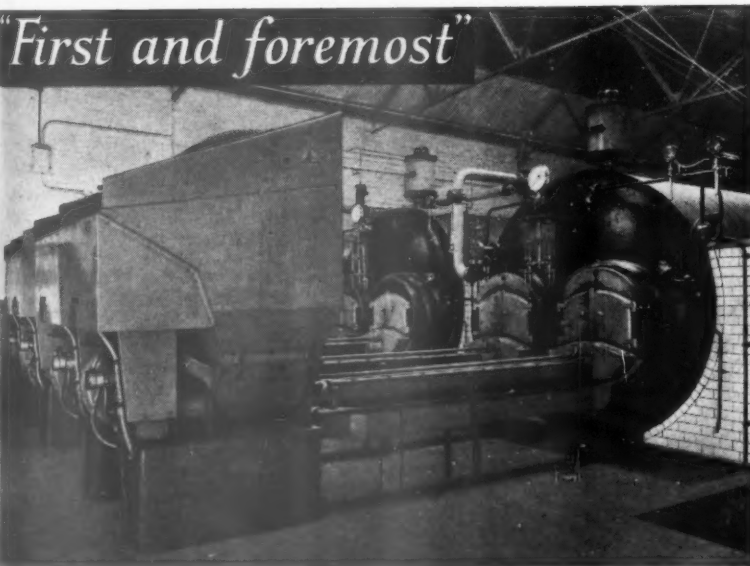
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PRICES

TRADE NOTES

BY DAVIS AND BELFIELD CHARTERED QUANTITY SURVEYORS

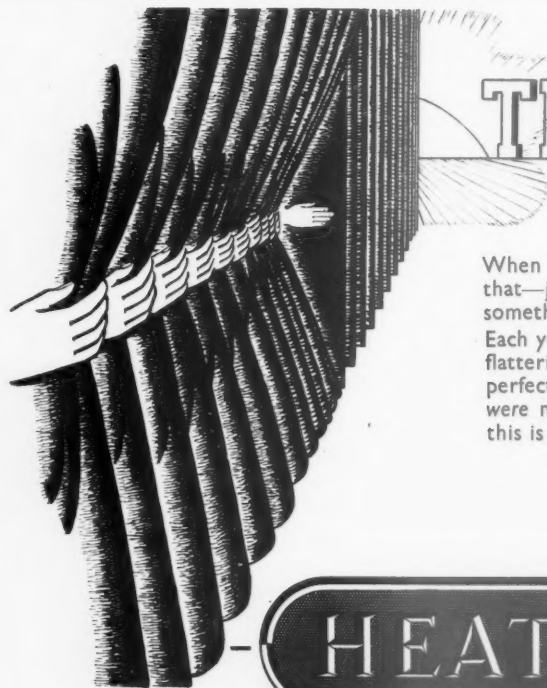
No change occurred during February in the prices of the basic materials given below. Rates of wages rose by $\frac{1}{2}$ d. per hour on February 1 for both Craftsmen and Labourers. Rates of Wages for Painters in the London District rose by 1d. on the same date, which reduces the differential margin by $\frac{1}{2}$ d.

BASIC MATERIALS	Increases over pre-war prices at end of	
	January, 1942	February, 1942
	Per cent.	Per cent.
Portland cement	+37·8	+37·8
2-in. Unscreened ballast	+71·01	+71·01
Fletton bricks (at station)	+11·89	+11·89
Stoneware drainpipes (British Standard) 2 tons and over	+28·13	+28·13
Roofing tiles	+30	+30
Steel joists (basic sections) ex mills	+47·5	+47·5
Lime greystone	+35·29	+35·29
Sheet lead	+54·35	+54·35
Iron rainwater goods and soil pipes	+26 $\frac{1}{2}$	+26 $\frac{1}{2}$
Copper tubes	+29·79	+29·79
White lead paint	+31·82	+31·82
RATES OF WAGES (Central London Area)		
Labourers	+19·05	+22·22
Craftsmen	+14·29	+16·67
LONDON DISTRICT		
Within 12 miles radius	Craftsmen 2s. 0 $\frac{1}{2}$ d.	Labourers 1s. 7 $\frac{1}{2}$ d.
From 12-15 " "	Craftsmen 2s. 0d.	Labourers 1s. 7d.
GRADE CLASSIFICATIONS		
	A	A ¹
Craftsmen ..	1/11	1/10 $\frac{1}{2}$
Labourers ..	1/6 $\frac{1}{2}$	1/5 $\frac{1}{2}$
	A ²	A ³
Craftsmen ..	1/10	1/9 $\frac{1}{2}$
Labourers ..	1/5 $\frac{1}{2}$	1/5
	B	B ¹
Craftsmen ..	1/9	1/8 $\frac{1}{2}$
Labourers ..	1/4 $\frac{1}{2}$	1/4
	B ²	B ³
Craftsmen ..	1/8	1/7 $\frac{1}{2}$
Labourers ..	1/4	1/3 $\frac{1}{2}$
	C	
Craftsmen ..	1/7	
Labourers ..	1/3 $\frac{1}{2}$	

O. A. DAVIS, F.S.I.

The Belco and Water Chlorinator is the subject of a four-page illustrated leaflet recently issued by Messrs. A. Bell & Company, of Northampton. This Chlorinator is claimed to reduce the system of water sterilization to an extremely simple and inexpensive operation; it has been marketed at the price of £12 12s., complete with polished oak or walnut cabinet. The brochure points out that the complete unit comprises one container of amber glass having a volume capacity of 100 ounces and a duty capacity of ten hours, resting invertedly in a polished oak or walnut cabinet, over an equalizing jar consisting of two vessels, one within the other. The neck of the container is fitted with a chlorine-proof stopper through which pass two glass tubes, the one for liquid and the other for air, these tubes depending into the inner vessel of the equalizing jar. Inserted into the outer vessel is a glass drip tube, which operates by syphonic action. This tube rests on an adjustable arm, which is controlled by a piston sensitive to pumping pressure in the case of automatic pumps, or by a simple adjustment within the cabinet where pumping is operated manually.

Some of the advantages claimed by the firm for this system are as follows: (1). When the container is first inverted the liquid is allowed to fill up sufficiently far to cover the opening of the syphon drip tube which is then primed by a rubber bulb pressed over the drip end of the syphon tube. When once primed the drip tube will work over a long period without re-priming. (2). Everything, with the exception of the rubber stopper, being made of glass, corrosion cannot take place. (3). This Chlorinator has been designed specially to simplify the system of water-sterilization, and is equal in its efficiency to the more elaborate systems.



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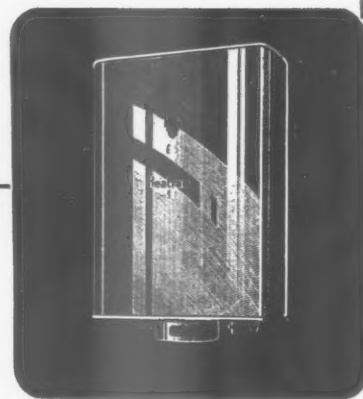
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