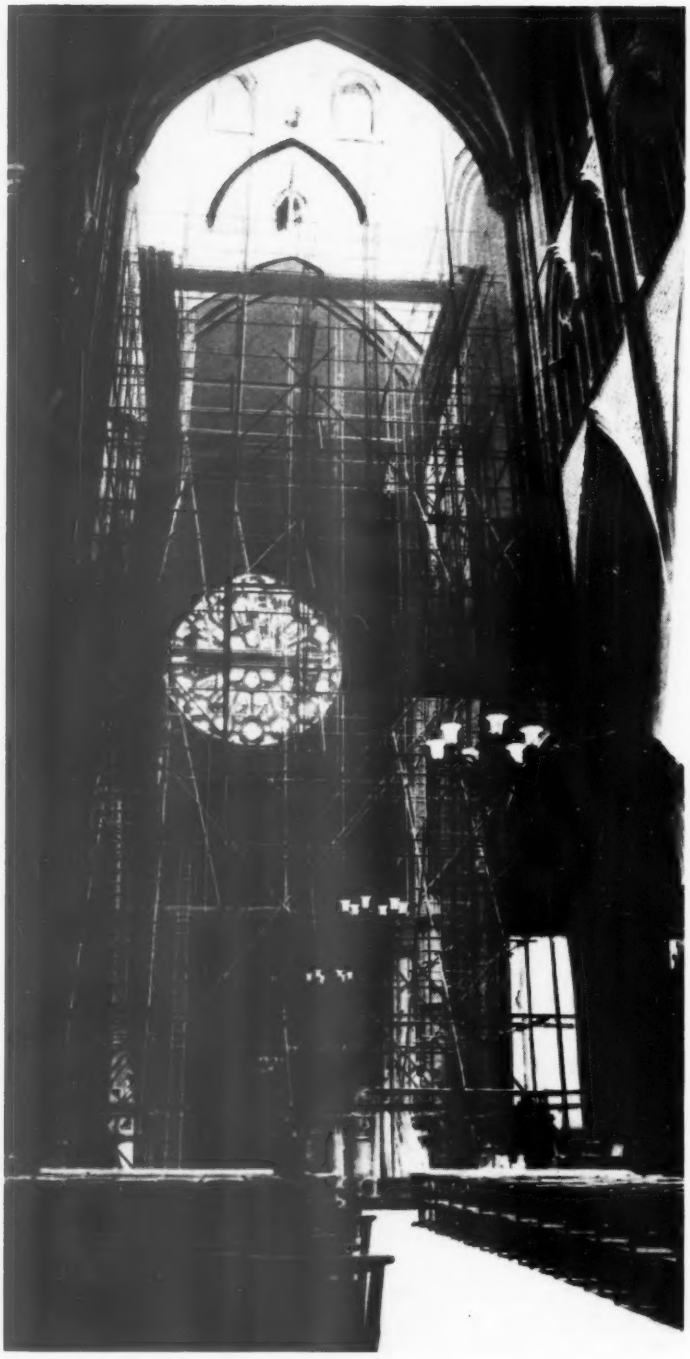

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THE ARCHITECTS' JOURNAL

THE ARCHITECTS' JOURNAL
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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.

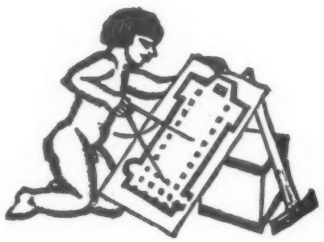
THURSDAY, NOVEMBER 27, 1941. NUMBER 2444: VOLUME 94

PRINCIPAL CONTENTS

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.*

★ *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 in this issue certain modifications are put into effect which save (without sacrificing any of the paper's standing features) a considerable amount of space. It is hoped that they will win general approval. They are explained further in the leading article on p.* 351.



from AN ARCHITECT'S *Commonplace Book**

FIRST CASE OF PREFABRICATION. "And the house, when it was in building, was built of stone made ready before it was brought thither: so that there was neither hammer nor axe nor any tool of iron was heard in the house, while it was in building."

1 Kings vi, 7.

NEWS

●

AN ARCHITECT'S WILL

Alderman Sir William Gelder, South Street, Cottingham, Yorks, architect, Mayor of Hull 1899-1903, a former Liberal M.P. for the Brigg Division of Lincolnshire, left £159,041 (net personalty £150,922).

CHANGE OF ADDRESS

The City of Leeds Housing Department has moved to Priestley House, Quarry Hill, Leeds, 9. Telephone: Leeds 28021.

STRUCTURAL PRECAUTIONS AGAINST INCENDIARY BOMBS

The Ministry of Home Security is issuing a leaflet entitled Structural Precautions against Incendiary Bombs, calling attention to the urgent need for buildings to be made more resistant to incendiary attacks. Among the main recommendations contained in this leaflet will be the clearance from top stories or roof spaces of all combustible stocks and the treatment of roof timbers with fire resistant materials. In addition, the leaflet gives advice on how to make roofs as impenetrable as possible and descriptions of the various fire retardant materials and paints available and the methods of using them.

The Ministry of Home Security urges occupiers of business premises, particularly warehouses, departmental stores and multi-storey factories, to carry out at once the necessary work and reminds them that compulsory powers under the Defence Regulations will be used if the need should arise.

The leaflet will be widely distributed through the Factory Inspectors and Trade Associations, but if there is any difficulty in obtaining a copy from these sources application may be made to:—Publications Department, Ministry of Home Security, Horseferry House, Thorney Street, London, S.W.1., or The Scottish Home Department, St. Andrew's House, Edinburgh 1.

JOINTING MORTARS FOR BRICKWORK

Wartime Building Bulletin No. 16* discusses special problems that arise in wartime in selecting mortars for brickwork. The factors usually considered are the strength required of a wall, the rate at which it is required to develop, weather conditions at the time of building, weather resistance of the wall, availability of materials, ease of workmanship and cost. In wartime there must be added, in many cases, the question of blast and splinter protection.

All these factors are considered in the Bulletin and definite recommendations are given for a number of different classes of work, e.g., air raid shelters, walls to carry heavy loads, normal and load bearing walls, non-load bearing walls, parapets and walls below damp-proof course.

In case it should again become necessary to economize in cement, limits are given below which it is inadvisable to reduce the cement content. The recommendations are summarized in the form of a table.

A.A.S.T.A. CONFERENCE ON WARTIME BUILDING

Members were evidently disappointed when, at the morning session of the Conference, the Chairman (Mr. Peter Rosenfeld, Chairman of the Technical Committee) announced that neither Professor W. G. Holford, A.R.I.B.A., M.T.P.I., Professor of Civic Design, Liverpool University, nor Professor J. D. Bernal, F.R.S., of Birkbeck College, could be present. It appeared that owing to somewhat misleading Press reports there had been created in the minds of the authorities a mistaken idea as to the purpose of the conference, which might have led them to suggest that it would be inadvisable for Professor Holford and Professor Bernal to attend.

Mr. RICHARD COPPOCK, L.C.C., in opening the discussion at the morning session, pointed out that whilst the productivity

* This feature really is from the commonplace book of an architect; to be exact Mr. H. R. Surridge, of the famous firm of Gotch, Saunders & Surridge, of Kettering. To him we are indebted for the quotations which will appear week by week in the same place.

* Building Research Wartime Building Bulletin No. 16 —"Jointing Mortars for Brickwork"—H.M. Stationery Office, price 3d.

Two views of typical JOURNAL *frontispieces, to be exact pages 301 and 302 of the issue for November 6. Whatever in normal times may be the effect of the generous display of white paper these pages reveal, it is a little difficult to explain why it should still be there in war. There might even seem to be a certain incongruity in issuing appeals to architects to save paper, as this* JOURNAL *has been doing, while itself not doing everything in its power to do likewise. All newspapers to-day are rationed for paper to a small percentage of their pre-war consumption. Every pound of paper saved in one direction, means that it can be used in another—for instance the paper for a special issue has to be squeezed from the quota for ordinary issues. Every page added to an issue means that so many less copies can be printed—and so many more readers go without. These considerations have led to the readjustments which appear in this issue and which are explained in the leading article opposite.*

PAPER

of the building industry, both in peace and war, depended upon the individual bricklayer, plumber and painter, those operatives were not, in the main, responsible for the set of circumstances with which they were at present faced. In war-time those trained to deal with problems as soldiers tended to be those who laid down policy; and procedure prior to the outbreak of war depended entirely upon politicians. The civil service was, of course, the basic organization, but when faced with an enormous programme of war development civil servants were, naturally, at a loss. The building trade had never been organized for public service. It was organized from the point of view of the possibility of payment of interest on capital investment. War-time production was down as a direct consequence of lack of planning. There should be a central control of policy, central determination of methods, and administration should be carried out on a central plan.

Mr. Coppock cited militia camps as an example of lack of correct planning. He did not think any single contractor was to blame there. Difficulties had arisen largely from shortage of materials, and the fact that there had been no centralized consideration of the problems involved. To-day there was still no co-ordination of policy. The association of the A.A.S.T.A. with the Trades Union Congress was nice, but actually it could be compared to a pimple on a circle. But the building trade operatives could not go far unless the technicians came in on their side, so that the cleavage which had existed between them during past centuries disappeared. There was in the building industry a great increase of black-coated workers. Recently he had visited a job on which 3,500 were employed, of which the directive and administrative personnel numbered over 400. Nevertheless, technicians appeared to be the worst-paid men on the job.

Working conditions vitally affected production. When men were working on a job and could catch a bus home, their output was fairly good. When they were sent to distant parts of the country and had to live in a cabin or hostel, not even heated, and received no home attention, the psychological effect of living under such conditions naturally diminished production.

Until in Great Britain there was greater reliance upon the industrial workers within the nation there would always be delays and blunders. It was no use arguing that cost plus was the cause of the trouble, or that cost plus must go. That was the only scientific basis on which to deal with the building industry provided there were scientific technicians and the necessary organization to deal with the problems. Unfortunately, both technicians and building operatives had been trained to make a profit for their employers. Social interests had not been the main consideration. Jobs had to be done as cheaply as possible, and technicians were expected to invent methods which would eliminate craftsmen as quickly as possible. All concerned should rather organize themselves to build for use and not for profit, but it was no use waiting for direction from the top; that had to come from the bottom—from the industry itself.

It was pointed out (by Mr. T. BRADDOCK) that operatives were not to-day confronting new difficulties. A year ago Mr. Coppock had focused the attention of the Govern-

★ *Mr. Frederick Gibberd, New Principal of the A.A.* *this page*

★ *A.A.S.T.A. Conference on Wartime Building* *pp. 349, 350*

★ *Wartime Building Bulletin No. 16 Stationery Office* *page 349*

ment and the industry on the difficulties. He had put forward proof of bad design, of the starting of jobs before drawings were ready, of unsatisfactory sites, of housing of directive staffs and not of operatives, but in spite of that the conditions prevailed. Vested interests profited from them. As long as the existing state of affairs continued there could be no improvement. Each and every technician must have the courage to stand up and expose evils wherever they were found.

Another member felt that if the suggestions embodied in "Wartime Building" were put into practice much would be done to improve war-time production. In the civil service there was complete lack of recognition by the administrative staff of the abilities of technicians. He quoted the case of an applicant for a post being told "As you are an L.R.I.B.A. we'll give you a senior position. So far we've only had A.R.I.B.A.'s here." The struggle for the improvement of the war effort and of the position of the technician would have to be waged against the large monopolies now in control of war industry.

Mr. RICHARD COPPOCK, in the course of replying to points raised, said the technician had undoubtedly been trained to be a good boy in the office, and that if the Ministry of Works and Buildings wished to improve building output it would be necessary to consider how civil servants and technicians could be associated; at what point the civil servant could override the technician in the development of the industry; what alignment the technician had with the Treasury; also problems of physical reconstruction, whether the civil service as the dominant factor on the administrative side would have the over-riding control of the technician dealing with the general structural side; to consider also the inter-relation of the administrative and financial side of the Ministry of Works.

The rest of the Conference is reported on page 361.

NEW PRINCIPAL OF THE A.A. SCHOOL

Mr. Frederick Gibberd, F.R.I.B.A. has been appointed Principal of the Architectural Association School of Architecture from January 1st next, in succession to Mr. G. A. Jellicoe, F.R.I.B.A. In his private practice he has specialised in housing and industrial design, his work being well known in America and Europe. Amongst his more important buildings are Pullman Court, Streatham, the largest block of reinforced concrete flats in this country, and the Macclesfield Nurses' Home, won in open competition. He is author of "The Architecture of England," a critical survey of the evolution of English Architecture to the present-day, which has now reached its third edition.

BEAVERBROOK DISPOSES

A PANEL has appeared in this paper for several weeks urging architects (who are in a particularly good position to help) to salvage their waste paper. They are in a particularly good position because architects are great users—and hoarders—of paper.

Of this stuff, paper, there is a widespread shortage. Lord Beaverbrook wants 100,000 tons—and means to get it. Every newspaper in the land, including this one, is begging its readers, in large type and small, to collect their waste paper and pass it back to the men who are making munitions.

But there is more than one way of wasting paper, and over some of these the papers themselves have some control. It is possible of course that there exist in some remote corner of the land crabbed misanthropes who regard the printing and publishing of newspapers as itself a waste of paper—this however is not what we mean when we say that there are certain forms of waste the papers themselves can avoid. We refer to the habit, the spacious peace-time habit, which has persisted into war, of allowing blank paper to reign in places where blank paper should no longer be. The frontispiece for instance and the fly-leaf in any normal issue of this JOURNAL in the past have revealed snowy areas of unused —and thus wasted—paper. The word WASTE conspicuously printed in the photographs on the opposite page illustrates the point we are making.

Now in one copy such waste may not amount to much, but in many thousands, repeated every week, a surprisingly substantial amount of paper is involved, and, to be candid, there seems to be a certain lack of consistency in a Journal publishing urgent appeals to its readers for salvage of the very material it might itself be helping, if only in a small way, to save.

As a result of these scruples the editorial pages of the JOURNAL have been re-arranged in the way that is revealed for the first time in this issue. It is a simple, and we hope successful, re-shuffle, which will be received, we trust, with good nature in view of the important consideration that it does save paper without losing space. Not a feature has been scrapped, though one or two have had to be slightly modified. Astragal goes into three columns; the frontispiece has had to be contracted; and so has the space provided for this leading article. As a result room has been found to shift the news pages into the front of the JOURNAL where they occupy some of the virgin paper which used to appear on the fly-leaf.

Again, let it be said, nothing has been lost by this change; on the contrary space has been gained. The sacrifice, if such it is, is a small one in war; and we are

persuaded that the object will commend itself to any person of goodwill. So much so that we make bold to remind the reader again that the country needs 100,000 tons of waste paper immediately for munition making, and architects are in a particularly good position to help. Most architects have ancient drawings, specifications, correspondence, which are no longer really wanted. Hunt through your plan chests, cupboards, files, drawers, attics. And should an ancient JOURNAL generously provided with *white paper* turn up—well, Lord Beaverbrook is welcome.

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

NOTES & TOPICS

HOW TO RUN A WAR

The subject of the A.A.S.T.A.'s latest report* is quite as important as the posters tell us. Building is the first operation in the production of munitions. Low output in building means fewer guns and aeroplanes and fewer positions from which to use them. And it is generally held that building output is bad and that the administrative and executive mechanism which controls and produces war buildings is far too complex and very inefficient.

★

A very simple and very clear description of how war building is at present controlled and some carefully explained suggestions of how that control could be improved is badly needed. It is just the job which the A.A.S.T.A. could do well.

★

War-time Building does not do it. It contains a number of foggy snapshots of parts of war building's control system, a number of complaints which are not documented and read peevishly and some platitudes which must have needed some moral courage to pass for print.

★

This is not good enough for the A.A.S.T.A., which has amongst its members and well-wishers persons holding responsible positions in almost every branch of war building. From those people the A.A.S.T.A. should be able to obtain information which would enable them to publish a booklet of three parts: (1) A Family Tree of existing administrative and executive authority in war building; (2) a dozen perfectly documented (but still anonymous) examples of what the fruits of the tree are like; (3) a ten-point programme of reforms.

★

I firmly believe that the publication of the Family Tree alone—showing all the building controllers, directors, advisers, sub-departments and re-duplicated sub-departments which infest every Ministry which builds—would be quite enough to bring the house down. But the authors of such a booklet would have to bear in mind that it will require considerable intellectual effort and most painstaking lucidity to discover and describe war building's present systems of control. There will be a constant temptation to generalize, to sidestep a difficult point, to slip one across high-ups just because they are high-ups, or loose off a good resounding platitude.* These relaxations must be shunned. The great British public is fed up with at least three of them.

★

GREAT HALF-CHANGE . . .

In its recent articles on the present state of the building industry the JOURNAL listed as one of the causes of low output manœuvres for position by big contractors and manufacturers.

★

It is probable that the JOURNAL's suggestion of publicity for larger war building schemes could reduce the number of the manœuvres. But it seems only sensible to admit that the elbowings which do take place, and gossip about others which do not, are unavoidable when positions of importance in building Ministries are held by members or ex-members of big contracting and manufacturing firms.

★

It is equally inevitable, indeed very desirable, that these positions should be held by these men. War building should be administered by expert building administrators, and there are more first class building administrators outside than inside the "professions" of the industry. The problem is, therefore, to prevent the idea getting about that four out of five high-ups play ball—under either co-operative or *sauve qui peut* rules.

★

Shrewd publicity about performance and relative performance in building output is the remedy which promises most. But, in addition, it would seem right for the building *professions* to be granted clear authority in the drawing up, definition and enforcement of terms of contract.

★

. . . AND THE FLIGHT OF A KITE

That the authority of the architect and quantity surveyor should be effective in matters of contract and "admission to cost" is more than ever desirable at a time when new methods are being tried out.

★

Consider, for instance, the bonus system. To ensure that greater

* *War-time Building.* A Report of the A.A.S.T.A. Technical Committee. The A.A.S.T.A., 113 High Holborn, London, W.C.1. Price 6d.

* For instance: "Proper organization must replace the present disorganization, inefficiency and waste must be eliminated."

speed does not result in worse workmanship imposes some additional work on contractor's agents and foremen—but nothing to the work which control of materials has imposed on architects. Yet some contractors now contend that where work executed under the bonus scheme is subsequently condemned the cost of replacement shall be admitted as a charge on the contract.

*

I have heard this contention put forward at length and with vigour: I have been told that "in London" its justice is generally admitted. One must just hope that the architects and surveyors "in London" are preparing to die on the barricades.*

*

UNDERNEATH THE ARCHES

The suggestion that a "not too modern" church should be built inside the ruins of Coventry Cathedral is not likely to be greeted with applause by architects, most of whom, I imagine, had rather see the ruins left as they stand (with suitable Office of Works turf as pedestal) and the not-too-modern church built elsewhere.

*

In what style I wonder. There is what Wright would call "deflowered Gothic." There is the hand-made-brick acoustic-plaster limed-oak school. There is the soul-elevator at Basle. But this is not one of the ages of religion as the word used to be understood. Ruskin was right, our churches lack conviction.

*

ASTRAGAL

The changes which appear in the JOURNAL this week were shown—for diplomatic reasons—to permament contributors well in advance of publication. And I am bound to say for a beginner Lord Beaverbrook seems to be editing the paper very nicely. As far as these *Notes and Topics* go the alterations are of architectural rather than typographical significance. To be exact I have gone from two columns into three. Just try to picture what it means, faithful reader, after all these years of unresolved duality, to find oneself a sound composition at last.

ASTRAGAL

* Architects who have not yet encountered the proposition described in this note may be interested in the following pattern correspondence about it:

Contractor: "I have instructed my agents that the utmost vigilance is to be exercised in supervising work. Nevertheless, if some work should subsequently be condemned, I must ask you to admit its reinstatement to cost."

Architect: ". . . If this vigilance is exercised I am quite sure no work will require rectification. Nevertheless if some work should have to be replaced, it will not be admitted to cost."

LETTERS

H. NORMAN EDWARDS

ARTHUR WELFORD

J. G. LEDEBOER, A.R.I.B.A.

G. B. J. ATHOE
(Secretary I.A.A.S.)

Current Architecture

SIR,—I feel constrained to make one comment regarding the majority of the work illustrated in recent issues of the ARCHITECTS' JOURNAL. In these days I note you tend almost exclusively to illustrate buildings of a hyper-modern type which appear to be based on extreme forms of modern Teutonic productions. I suppose this type is favoured by the "younger school," but will we not be losing something worth preserving of our own national traditional architecture if this "international continental type" is almost solely encouraged? Would it not be possible more often to show us work based more on traditional lines with, at the same time, plenty of "modern kick" about it, rather than these (to me) "soulless" concrete boxlike structures.

I can appreciate the recent efforts in housing design such as can be seen at Liverpool, and the work of a sound modernist such as Edward Maufe, but are those who do appreciate such work to be written off as "hopelessly old-fashioned" and therefore not worth considering? Perhaps I should, in fairness, be frank enough to admit I am the wrong side of 50—which in these days appears to be a crime in itself—and possibly outside the pale, for I hate "saxophones" and "swing music"; but, "senile" as I am, I trust I shall always remain young enough to appreciate beauty of line *where* it can still be found.

H. NORMAN EDWARDS

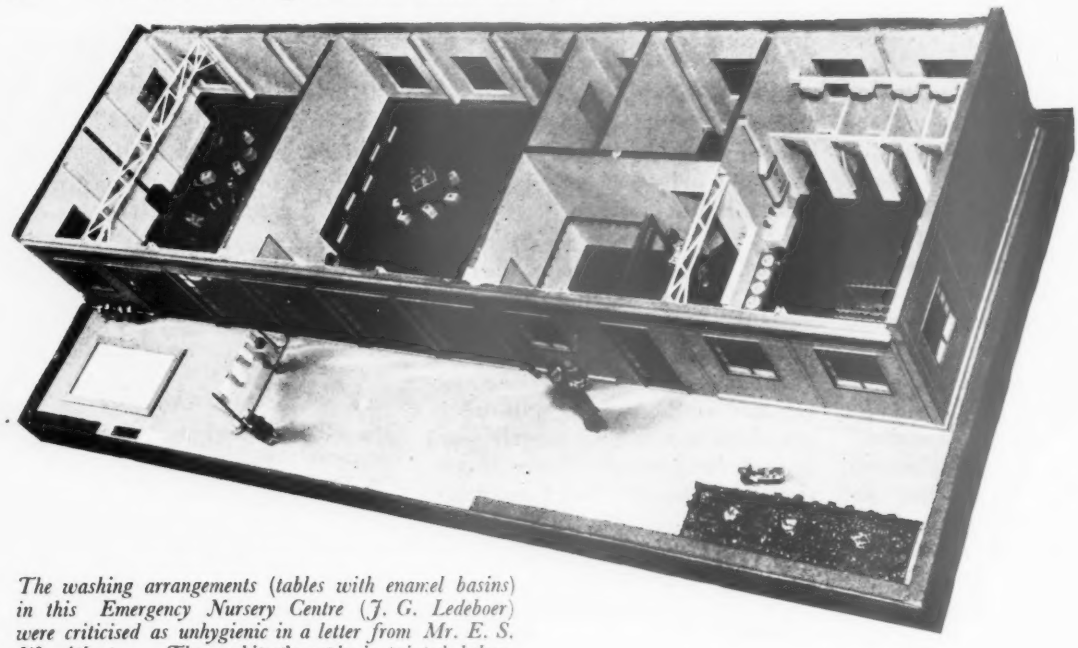
Cardiff.

[We hope the work illustrated in this issue will not dissatisfy our correspondent.—ED. A.J.]

Where is Here?

SIR,—In your issue for November 6, Astragal quotes P.E.P.'s broadsheet called The New Pattern, which says that "the phase of industrial civilization which is coming to an end depended on three essential conditions"; these are set down under (*a*), (*b*) and (*c*).

This diagnosis, so far as it goes, may or may not be correct but certainly it is incomplete, for a further condition which overrides (*a*), (*b*) and (*c*) should



The washing arrangements (tables with enamel basins) in this Emergency Nursery Centre (J. G. Ledeboer) were criticised as unhygienic in a letter from Mr. E. S. W. Atherton. The architect's reply is printed below.

be stated under (*d*).—A faulty banking system under which all new money came into existence out of nothing at the sole will of the controllers of that system, and as a debt against the community owing to the banks.

The result of this was a chronic national deficiency of purchasing power in the hand of consumers because of the premature recall and destruction of bank loans ; the rate of flow of prices (which include all loans) being greater than the rate of flow of purchasing power (from which those loan figures have been abstracted). This accounted for world-wide artificial poverty in money together with periodic gluts of goods, with subsequent slumps and unemployment.

The remedy lies in the direction of a development in the money system ; in the recognition that all new money, created by the banking system out of nothing but the inkpot, is National Credit—that it is an accountancy system that must serve really to deliver the goods. That this National Credit must be used to equate consumption with production without leaving a trail of false debt. And that Consumption-Production or reality is more important than abstraction, or the accountancy of banking.

ARTHUR WELFORD

Saxmundham.

Enamel Basins

SIR,—Your correspondent, Mr. E. S. W. Atherton, raises an interesting point in the letter published in last week's issue. He condemns the washing arrangements made in the Emergency Nursery Centre designed by myself.

As the point has been raised at other times, I should like to explain why, on the advice of the Nursery School Association, it was decided to arrange washing accommodation in the form of tables with enamel basins, rather than fixed washstands.

In the first instance, the object of the scheme was to show how a temporary nursery centre could be erected to the entire satisfaction of requirements with the greatest economy. After all, we are at war, and are urged to economize in every sphere. Every architect knows that a table with enamel basins is cheaper than a range of fixed lavatory basins with water and drainage connections. The need for economical building has never been sufficiently realized in the extension of social services even in peace time, when the high cost of nursery school buildings and equipment prevented a large number of local authorities from starting on essential schemes.

Besides, no question of infection need arise, if the basins are cared for in the way that even fixed basins should be cared for.

Undoubtedly fixed basins save work for the staff, but the opportunities for the children of gaining skill, experience, balance, etc., while carrying and emptying water are, in the opinion of many experienced nursery school workers, of the greatest value. The arrangement has the added advantage of offering conditions similar to those the child experiences at home, and the mothers themselves have been known to remark on this. It is recognized that the more simple and homelike the atmosphere of the school, the more naturally it fits into the development of the children.

As a result of these considerations, it was decided to use enamel basins for washing accommodation in what is a temporary war-time scheme.

J. G. LEDEBOER

London.

Loot

SIR,—The excellent illustration of the Colosseum, Rome, which decorates the advertisement of Messrs. Mellor, Bromley & Co., Ltd., on page xvii of your issue for October 30, is interesting for a reason unconnected with the subject of the advertisement itself. You will note that no railings surround the famous ruin. I know from personal observation that pieces of the ancient masonry which have fallen lie on the ground pretty well all round the edifice, but I am told that there is never any looting of souvenirs as there was in the case of those pieces of the Parthenon friezes which had fallen and of which none would have been left if Lord Elgin had not salvaged them from Athens and brought them to safe custody in England. Of course, one cannot say what may happen if German " tourists " and " technicians " arrive in force ; then even railings would not save the bits !

G. B. J. ATHOE.

London.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

GENERAL CONSIDERATIONS & PRINCIPLES OF DESIGN IN WELDED STEEL Nº 9 :

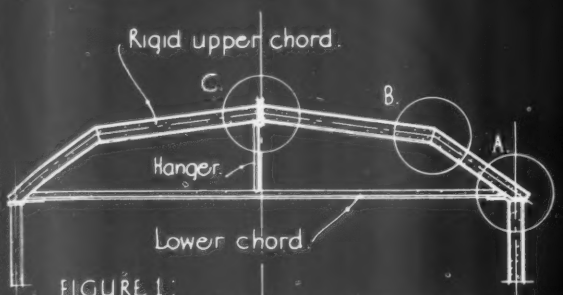


FIGURE 1 :
TYPICAL CONSTRUCTION OF TRUSS WITHOUT DIAGONALS.

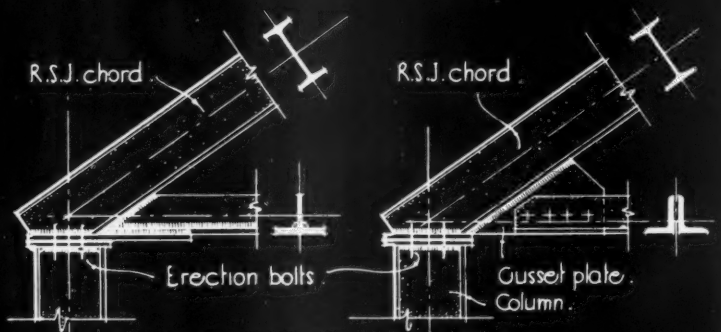


FIGURE 2a : ALTERNATIVE ARRANGEMENTS OF SITE CONNECTION AT POINT 'A'

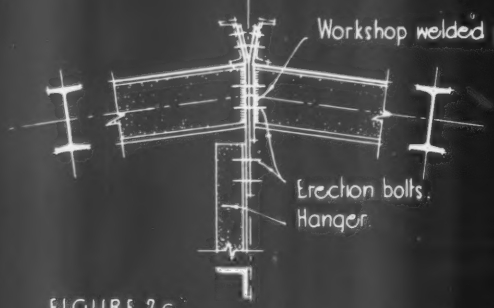


FIGURE 2c :
SITE COMPRESSION JOINT AT POINT 'C'

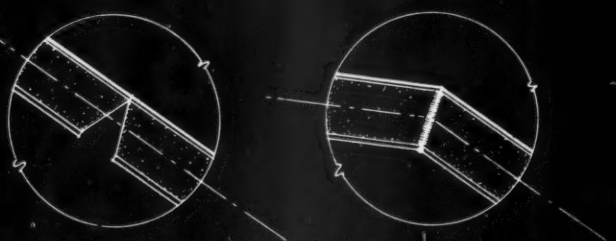


FIGURE 2b : WORKSHOP FABRICATION AT POINT 'B'

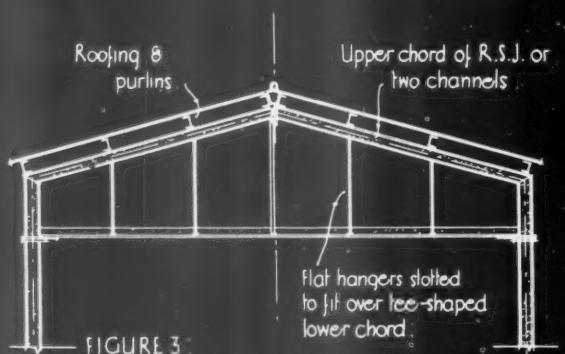


FIGURE 3 :
FORM OF TRUSS FOR LARGE BENDING MOMENTS.

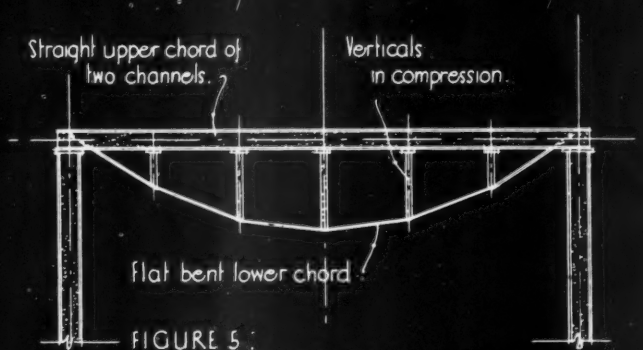


FIGURE 5 :
VARIATION OF TRUSS FOR LONG PURLINS.

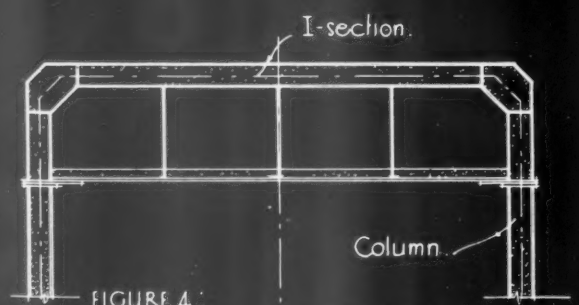


FIGURE 4 :
ALTERNATIVE TRUSS FORM FOR LARGE BENDING MOMENTS.

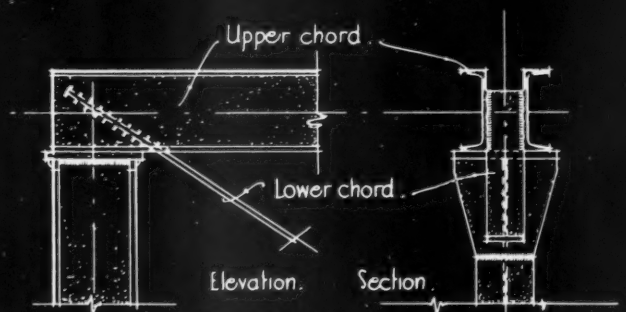


FIGURE 5a : DETAILS OF NODE AT SUPPORT.

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INFORMATION SHEET : STEEL FRAME CONSTRUCTION, G3 : WELDING Nº 19.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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STRUCTURAL STEELWORK

Subject : Welding 19 : General Considerations and Principles of Design in Welded Steel : No. 9, Roof Trusses without Diagonals (*a*).

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 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 ninth of the section illustrating general considerations and principles of design, and shows further developments in the systems of welded roof trusses to suit particular requirements.

Omission of Diagonals :

Figures 3, 4 and 5 on Sheet No. 15 of the welding group illustrated trusses in which one or several diagonals were omitted. This is done for one of three reasons :—

(1) To simplify labour and provide economy ;
(2) To provide openings ;
(3) For æsthetic reasons.

Where diagonals are omitted, one or both of the chords must be rigid enough to take the bending moments. In certain cases filling members are rigidly connected to one or both chords. By varying the form of the upper chord, the bending moments can be reduced to a minimum.

Application :

Figure 1 shows a typical form of construction where the upper chord consists of a joist or two channel sections sufficiently rigid to take the bending moments which, however, will be small if the centre line of the upper chord approaches the line of thrust. Figures 2a, b and c, show details of the main points of such a truss, which can be fabricated in the workshop in three pieces, the same as other trusses, so that three site connections become necessary. One connection (point C) is in compression and can be made up of two plates butting against each other and connected by bolts, while at the supports (point A) welding or bolting can be arranged.

At point B one flange and the web of the joist are cut out in V form and both ends bent together to produce the final shape.

Special Forms :

Figures 3 and 4 give variations in which the chords will be subjected to greater bending moments, and will, therefore, be heavier, but in certain instances, either for architectural or practical reasons, these shapes may be preferred.

Long Purlins :

A variation of this type which can be used for long purlins is shown in Figure 5. In this case the upper chord is straight and the lower chord bent, and the latter can consist of a flat section. There are no diagonal members, and all verticals are in compression so that the transmission of stresses is simple and the welds merely serve to hold members in position. There are only two nodes of any importance, namely at the two supports. Such a point is shown on a larger scale in Figure 5a.

If the load were always equally distributed no bending moments would occur in the upper chord. To resist irregularities, however, the chord must be stiff (preferably one joist or two channels, except for very heavy construction where composite sections may be used).

Previous Sheets :

Previous Sheets of this series on structural steelwork 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 and 847.

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THE CORNWELL ESTATE

RECONDITIONED BY CLOUGH WILLIAMS-ELLIS

Cornwell Manor seen through the gate from the walled garden to the swimming pool.

GENERAL. — The Cornwell Estate, situated south-west of Chipping Norton, includes the freehold of the village of Cornwell. The estate was purchased by Mrs. Anthony Gillson in 1938, and in addition to work on the manor house and grounds, she

CORNWELL ESTATE, OXON *RE*

Top, left, the village green, with see-saw and round-about, in the green asphalt centre, formed on the space previously occupied by a dark conifer plantation, which darkened the village and divided it in two. Centre, the village shop, and, on the right, the village hall, formerly the disused Victorian school-house. Its chimney-belfry (with air raid siren) is a charming touch of country baroque. Bottom, the village hall and street from the Green, showing the remaining elm trees on the road above, and the new apse of the Hall. Above, a fourteenth century doorway at the back of one of the cottages seen on the left.

instructed her architect to recondition the farm buildings and the village. Work was commenced in 1939, and although the outbreak of war resulted in the postponement of the erection of several new cottages, the reconditioning of all the existing buildings has been completed.

SITE.—The village forms a cul-de-sac, lying off the local by-road, at the head of a valley. Springs in the hillside just above it are sources of the river Evenlode, and the stream which they feed runs through the middle of the houses southwards. The manor house stands on the slope beyond the

RECONDITIONED BY CLOUGH WILLIAMS-ELLIS

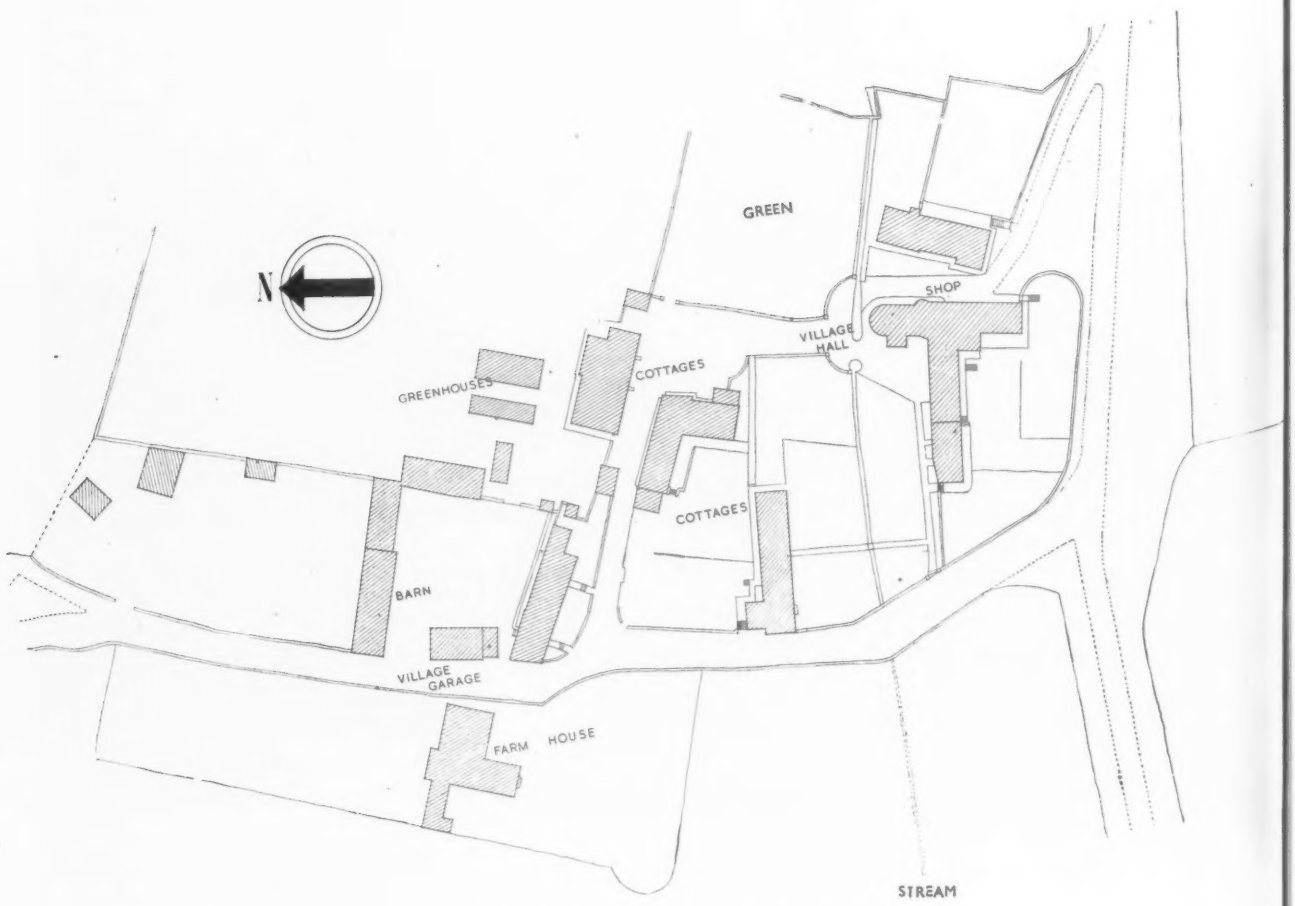
Above, looking up the village street from the Green. Below, the village street looking towards the ford over the brook with the village green beyond.

village, and the little thirteenth century church further down.

The village consists of two "strats," one leading down from the road to a ford of the brook, and another at right-angles, some yards up the further slope, leading eastwards towards the manor house, the kitchen garden of which it adjoins. The cottages were all of the Cotswold type, mostly of seventeenth century date. There was little of later date with the exception of the disused Victorian schoolhouse. There were no drains, no shops, hall, or playground, and the school was disused.

CONSTRUCTION. — The client's general instructions were that the traditional external appearance of the cottages should be maintained as far as possible, but that convenient

CORNWELL ESTATE, OXON



PLAN OF CORNWELL VILLAGE

modern interiors should be designed within the ancient walls. The first undertakings were a complete drainage system, with disposal down the valley, a fixed water supply from two alternative sources to ensure a continuous flow. Grid electricity was supplied to every house, providing wireless and heating plugs as well as light. All the cottages now have at least three good bedrooms and a parlour, besides a living-room-kitchen with Triplex grate, bathroom, lavatory basins and inside sanitation.

These offices, if "usual," are a distinct innovation in most villages. Wrought-iron lanterns are provided by the Estate for street lighting. In all cases extensive excavations and retaining walls were necessary, owing to the slope of the sites, to ensure the dryness of the interiors.

At the bottom of the street, and overlooking the Green from across

RECONDITIONED BY CLOUGH WILLIAMS-ELLIS

the brook, the Victorian school-house has been converted into a miniature village hall. On the street side the lattice windows remain, but the building has been transformed with an apse at its north end, round which curves the road, a large-windowed committee room at the back, and a massive chimney-cum-belfry.

The village shop has been established next door to the hall, and has a bow window with small panes, steel framed.

Top, the dovecote and entrance gates to the Estate. Right, gazebo in the garden which houses the purification plant of the swimming pool. Facing page, early Tudor stable buildings, at right angles to the entry front, seen from the approach road.

Top, the new ball room attached to the Manor House supplements the Hall for village entertainment purposes. Centre, the canalised stream, with paved bed and level crossing of the ford. On the right is the Committee Room added to the Hall, previously the School. Bottom, reconditioned cottages in the other street. It lies on the opposite side of the brook above the Green, and leads towards the Manor House.

CORNWELL ESTATE, OXON.

LITERATURE

MAN'S NOBLEST STUDY

[BY MAX FRY]

THE SCIENTIFIC ATTITUDE. By Professor C. H. Waddington. Harmondsworth: Penguin Books Ltd., Price 6d. net.

One of the few hopes capable of sustaining our spirits and piercing the film of frustration that slowed down our every action in the days before the war was centred in the growing realization that the separate and sectional enquiries, of science, sociology, medicine and the like, were manifestly flowing together in a common attitude towards the problems besetting our times.

We used to say that we were fighting against time, that it was a toss-up whether the ideas underlying modern architecture would find sufficient acceptance to encourage a wide extension of our usefulness, or whether we should be forced to throw them aside to deal with the disruption caused by the Nazi ideology. We knew, of course, that time had beaten us, but after nearly two years of war the hope remains and, more clearly than before, is seen to mark the only direct route towards a satisfactory rearrangement of social and international machinery.

C. H. Waddington's brilliant, and so very readable, book is concerned entirely with this coming together of once separate forces. He calls it the Scientific Attitude. One might quarrel with the title and say that it is not all a matter of science; but if by the scientific spirit one means the spirit of exact enquiry, established by proof, as opposed to customary revelational or emotional justification for belief, then one recognizes the extent to which every other contemporary activity of value is permeated by this spirit, and how inevitably its extension in the world of science as once, and in some quarters still, so narrowly conceived, brings the best and most highly trained scientific intelligences into touch with the vital social and political problems which are the first concern of the contemporary world.

Waddington looks to culture in the first part of the book and finds that the

first acceptance of a scientific background of understanding by artists and poets resulted in a systematic destruction of previously accepted conventions and beliefs with few signs of a sufficient structure on which to build again. Impressionism, cubism, surrealism were experiments, but in a restricted field with no chance of an extended validity.

Architecture alone, and because of its immediate contact with human needs and the science of structure and material, floated itself into the main stream of scientific enquiry, from which position its more discerning practitioners were able to signal the news of a clear passage ahead for as far as they could see, which wasn't, of course, very far.

This is understandable for, as Waddington points out, " the details of economic reorganization, and even its general plan, will have to be worked out by the only efficient method ; trial and error, and carefully planned experiment."

One need not be misled, as some architects are to-day, into believing in a scientific up-and-up which may be as illusory as the earlier materialistic optimism. Art forms develop, not steadily, but in cycles, an urge towards experiment and enquiry, reaching a stage of temporary sufficiency and confidence during which it enjoys itself with elaboration and refinement upon the well-understood body of its reason. Not otherwise can it be brought within the handling of lesser men in the form of a vernacular.

But we are a long way from such a state, not having extended our sphere of usefulness to touch more than the smallest part of society. As yet we are in the position of having to write our own programmes and must join with anyone who, like Waddington, will attempt to write the larger programmes of social conduct of which the outlines are more closely visible to the awakened scientist than to others.

His awakening is recent enough, goodness knows. But he awakens to find that his approach to the study of his sectional problems has already begun to shift society to a position from which it can best attack what threatens to disintegrate it. He finds himself a leader *malgré lui*.

"Science cannot avoid the responsibility to offer its help now . . . it must become, in its general aspects, a genuinely understood and respected basis for our emotional attitudes . . . At the present time it is only science which has the vigour and the authority of achievement which is necessary to give them that fresh vivacious *joie de vivre* which captivates men's hearts and minds."

To architects moved by the great needs of our times to reconsider the terms of their profession to society and their art may I recommend this sixpenny-worth of wisdom. It will give their thoughts direction and scope and will help them to make better architecture when we start again.

A.A.S.T.A. CONFERENCE ON WARTIME BUILDING

The morning session of the Conference is printed on pages 349-351. *The following pages deal with the afternoon session at which discussions took place in regard to the improvement in the existing internal organization of ministries and Government departments.*

Mr. COLIN PENN (President, A.A.S.T.A.), who presided at the afternoon session, invited really constructive proposals as to ways in which technicians could immediately in their offices bring about improvement of the existing state of affairs.

Mr. PETER ROSENFELD stressed the necessity for the technician being accorded proper responsibility in the carrying out of his own particular job. There was already in existence an organization to deal with planning in that the Ministry of Works could and should be responsible for all building work carried on during war-time. Requirements of the other ministries should be co-ordinated by the Ministry of Works. Thus labour, material, plant and technicians could be allocated as most needed.

There was room for improvement in the internal organization of ministries and Government departments, as well as in the offices in which technicians worked throughout the country.

There must be co-ordination of planning requirements and of structural research. Great saving could be effected by the issue of standardized designs and methods of construction.

The Technical Committee in its report had rather condemned cost plus. Whatever the form of contract, it was essential that there should be proper technical supervision. If cost plus had been adequately supervised many of the abuses which had arisen and many instances of over-expenditure could have been avoided. By proper supervision, the erection of unsuitable shelters and the lime mortar scandal could also have been avoided.

To bring war-time production to its maximum it was not only necessary to bring about organizational changes, but, at the same time, to secure the active co-operation of the authorities concerned and of all engaged in the building industry, and to bring about a sense of responsibility and urgency ; and, of course, those doing the jobs must be enabled to work under decent conditions. Technicians often forgot the urgency of the situation, and the need that they should do everything possible so far as their own job went. At the same time if it was possible to so organize their own particular offices as to allow of greater co-operation and collaboration with heads of departments, and afford opportunities for initiative on the part of technicians, much good would result.

Through the A.A.S.T.A. there could be exchange of technical information, dissemination of official publications and forms. One of the key tasks in overcoming the weaknesses in the building industry would be the building up of the Association into a really powerful organization comprising all technicians in the building industry.

In conclusion, Mr. Rosenfeld quoted from a letter received from a member of the Association which recorded that a certain firm had prepared drawings and specifications for various sewage disposal works needed for Army camps. Those documents were issued by the various commands and contractors invited to tender on a fixed price basis. No bills of quantities were issued. That meant that in the office of each contractor tendering, quantities had to be taken off, which quantities could easily have been issued with the invitation to tender. Thus one quantity surveyor would have done the work at present being done by, say, six.

A member added that he had prepared the estimate for one of those sewage disposal works. On visiting the camp site it was found that the drawings the technician brought with him were the first indication the engineer on the job had had as to the proposed works. On one of the sites the outfall from the sewage disposal was shown discharging into a fence ! Needless to say, quantities had been prepared prior to the visit to the site.

The next speaker urged that there should be a centralized programme of research. At present over a dozen departments were concerned with research to overcome problems of shortage of certain building materials and of construction to withstand the effects of enemy bombardment, many of them publishing results independently so that there could be found several different instructions, say, for the erection of steel framed buildings. Research departments should, in the first place, state the minimum requirements to meet problems and before designs were made, the knowledge available should be communicated to those concerned. Actually at present four to six months might be spent on the design of a normal peace-time factory, and then the work be interrupted by a completely new set of requirements which in some cases meant complete re-design of the building. Technicians working on research in connection with the building industry should see that their research was related to present-day problems. There should be wider collaboration with production engineers and, even further back, the whole economic planning of new factories and problems as to the most urgent products should be taken into consideration. Commenting on the sudden change of emphasis from aircraft to tank production, he said the industry was not geared to change after six months what six months previously had been stated as the requirement. Any programme in the industry involved time in which to apply technical research and to co-ordinate that into one complete programme.

Col. NEWCOMBE suggested that official technical requirements could be obtained by the Association getting into touch with the Building Research Department,

and the Research and Experimental Station at Princes Risborough, and with one or two other departments concerned. Information in leaflet form was obtainable at H.M. Stationery Office. The Chairman said he thought the point was that there was insufficient co-ordination of research carried out by the various Government departments, so that results could be contradictory.

A member gave details in regard to construction of electrical power stations as to which there had been inconsistencies, not due to the architects. There was vacillation in policy on the part of the authorities, due mainly to insufficient consultation with architects and lack of planning at the start. As a result plans had to undergo several revisions; steelwork fabrication was held up and, in some cases, steel was actually scrapped. There was insistence on the use of materials which could be conserved for direct war needs. Glazed metal windows were put in openings which were bricked up or blacked-out during construction; expensive floor tilings were used, also elaborate light fittings, all entirely inconsistent with war emergency work. Specialist sub-contractors had contributed rather to financial gains than to efficient, economic and speedy execution. Constructive technicians found that there had been insufficient forethought in planning, lack of collaboration within the technico-electrical departments and their employers, which was akin to costliness. He quoted an instance where insufficient space had been allowed at a certain point and the electrical experts had persuaded the architect that it was necessary to move a stanchion. His staff, however, realized this involved complete redesign and were able to show that even more space could be made by cutting away a brick pier. Such a situation could and must be remedied by proper consultation between the staffs; and technicians should have more authority to make decisions, when appropriate. Even when the technician knew what should be done, he was often not able to do it because the basis of the requirements was already laid down by the Ministry for which he worked. Nevertheless, cases had arisen in which that basis was quite wrong. In spite of protests out-of-date methods of providing A.R.P. protection remained. It was essential that there should be closer co-operation between all technicians and building trade operatives on the actual sites.

Another member said that although the Ministry of Works knew he was in charge of the erection of three hostels he, nevertheless, received three separate lots of forms and papers which meant an enormous waste of paper and time. All three jobs were far from London and each visit entailed a bill of £2 per day. Architects in neighbouring towns could have done all that was necessary, and more use should be made of small architectural firms in that connection. A local firm of contractors would have been better able to cope with the situation than the London contractors who were unable to obtain the necessary labour.

Another speaker referred to the chaos that had arisen from the fact that in nineteen months his station had been under seven different D.C.R.E.'s, and two different C.R.E.'s. Garrison engineers seemed to be treated much as old resident clerks of works used to be. In regard to extremely unsatisfactory drainage at a small camp holding 100 men he had sent in a report suggesting that new plant be installed, the cost of which would have been about £150. He received no acknowledgment, but five months later a letter arrived saying a scheme had been prepared for a new sewage installation, the estimated cost being £1,500. Among other questions he was asked "How many does the camp hold?" "Is the site large enough to accommodate the dispersal area of the scheme?" "Is there public water supply near that might be contaminated?" No plan of the scheme was sent him to aid in answering the questions. He replied as best he could, and the subject was never again referred to. In that instance all the man on the spot needed was authority and approval of his suggestion. Much delay arose from present contract procedure, and work was not by that means done cheaply. Frequently all the contractors in an area collaborated and whichever wanted the job sent in the lowest estimate, which meant they arranged prices among themselves. One of the worst defects of the present system arose from the fact that the top three-quarters of the particular service was military, and the bottom quarter civilian. The regular officer was generally trained to regard the civilian as a sort of sub-species. No notice would be taken of any suggestion the civilian made.

A delegate from a Midland Branch testified to the value of meetings in offices, and described how the chief of his department had met his staff and arranged with them the programme of work for the ensuing few months. At those meetings there were also smaller points in connection with office organization which had been discussed. The result had been an enormous improvement in the atmosphere and consequent efficiency of the office. It should be borne in mind in relation to the future that the technician had a much stronger position from the point of view of the set-up of the building industry than prior to the war. There were now great possibilities.

Another speaker employed in a Government Department said: "Bulletin 17 on Factory Buildings refers to a typical layout showing buildings planned to avoid the possibility of being hit by a stick of bombs. When I suggested this plan should be followed, I was told, 'Oh no, we don't do that.' Apparently they had in mind something like a block of municipal buildings. They told me not to 'fuss' when I pointed out that the site was not level—'we will level it,' they said. This, I found subsequently, would only cost £20,000!"

"To be constructive," he continued, "there must be an overhaul of available technical staff. Good men are now drawing out buildings 10 ft. square for W.C.'s, whilst those in charge are, architecturally speaking, eating peas from knives. There must be direct contact with somebody able to give instructions. At the moment my instructions come through about fourteen thick wet blankets, and then don't mean a thing. I struggle with the drawing. It goes through all the wet blankets again, and then the old boy at the top says: 'That's not what I want at all.' He sat by my board for ten minutes and, damn it, I now know what he wants. I can do a fortnight's work in one month!"

"Finally," he said, "we must have the information and we must be able to visit the site. Such visits are not only discouraged but strictly forbidden, even in your own time. I have tried."

Mr. BOLLAND, speaking as a technician in training, expressed amazement at the state of affairs revealed at the Conference, and regretted that those who were about to go out into war-time jobs were not being instructed how to deal with and to improve prevailing conditions, and were completely out of touch with practical problems.

Mr. JACK RYAN, District Organizer of the N.F.B.T.O. thought the fact that technicians could now hold such a Conference a really historic step forward in the building industry. Building trade operatives, those upon whom technicians were finally dependent, were unaware of the great difficulties technicians had in carrying out design. There was still a wide gap between building operatives and technicians. By getting closer together they could eliminate many obstacles to progress. Their problem was not only one of war-time production but of production for the future. United they would stand; divided they would fall.

Mr. ROSENFELD, replying to discussion, remarked that lessons could be learnt from the Soviet Union where, in the most difficult conditions, amazing output was being maintained. There, the mainspring of organization was constructive criticism—so much so that reports in newspapers were sometimes seized on as indicating widespread disorganization. How untrue that was could be seen from the marvellous resistance now being put up. He hoped the authorities would realize that this Conference was called in the same spirit of constructive criticism.

He concluded by moving a resolution and, in doing so, urged members to realize that if they carried it, they had in the ensuing months to do their utmost to implement it and not leave matters entirely to the executive. The resolution, which was carried unanimously, was as follows:—

> "This Conference calls on all building technicians for an immediate drive for increased output in their work, and to secure the adoption of measures that will increase efficiency of building.
>
> "It calls for consultation in offices and building jobs throughout the country between the heads of departments, firms and ministries and their technical staffs, so that proposals can be formulated to eliminate waste and inefficiency.
>
> "It calls on responsible officers in the ministries to encourage and act on suggestions for improvements from all technical staffs in all spheres of the industry and to make full use of the latent technical skill in the planning and execution of the building programme.
>
> "It calls on technicians to build up closer contacts with building operatives and to make full use of their Union machinery in revealing shortcomings and increasing output.
>
> "In particular, it calls on members of the A.A.S.T.A. to lead this drive, both through the Association and by personal example."

Following the Conference the Association has received a request from the Ministry of Works and Buildings to lay before it fuller evidence. The Technical Committee is now considering the compilation of this, and how it can best be used.

STUDENT'S PRIZES 1941-42

The following prizes have been awarded in competition to student members of the Manchester Society of Architects and affiliated Societies.

SENIOR MEASURED DRAWINGS PRIZES.

1st, Bradshaw Gass Prize : R. B. Turner, Manchester University School of Architecture.

2nd, Society's Prize : Noel Goom, Manchester University School of Architecture.

JUNIOR MEASURED DRAWINGS PRIZE.

Society's Prize : G. Bardsley, Manchester University School of Architecture.
Commended : P. A. Shaw, School of Architecture, Municipal School of Art.

SKETCHES PRIZE.

Beaumont Prize : D. G. Fenter, Manchester University School of Architecture.

ESSAY PRIZE.

President's Prize : One-half, R. B. Turner, Manchester University School of Architecture.

One-half : J. A. Doherty, Manchester University School of Architecture.

SENIOR DESIGN PRIZE.

Society's Prize : R. B. Turner, Manchester School of Architecture.

JUNIOR DESIGN PRIZE.

G. Bardsley, Manchester University School of Architecture.

THE LARGEST ESTATE PRESENTED TO THE NATIONAL TRUST

The largest single estate yet transferred to The National Trust is Wallington. This has been presented to the Trust by Sir Charles Trevelyan and consists of over 13,000 acres of farms and moorlands.

APPOINTMENT

The Clydebank Town Council has appointed Mr. Sam Bunton, subject to the approval of the Department of Health for Scotland, to undertake the preparation of a town planning and reconstruction scheme for the burgh. Mr. Sam Bunton is a town planning consultant.

RECONSTRUCTION—PLANNING AND BUILDING

A course of six public lectures on Reconstruction—Planning and Building, is to be held at Morley College on Thursdays, at 6 p.m. during December and January. The lectures will cover such subjects as our heritage in building, the best building of the twentieth century at home and abroad, principles of town planning, the rebuilding of London, transport in relation to the town. Lecturers include : Miss Justin Blanco White, Mr. Leo Desyllas, Mr. J. M. Richards and Mr. Thomas Sharp. The price of admission is 2s. 6d. for the course. Further details may be obtained from the College Secretary, 61, Westminster Bridge Road, S.E.1.

ANNOUNCEMENTS

Mr. H. V. Lobb, F.R.I.B.A., has resigned his position as manager to Messrs. Guy Morgan and Partners, F/A.R.I.B.A., A.I.STRUCT.E., and is continuing in private practice from 19, The Butts, Brentford, Middlesex. Telephone, Ealing 2491.

Mr. Henry H. Hill, A.R.I.B.A., of Cork, has been elected an Associate of the Royal Hibernia Academy, and among the buildings designed by Mr. Hill are the Dairy Science Institute at University College, Cork, and the Cork Municipal School of Commerce.

Mr. G. W. Mitchell, Controller of Building Materials in the Ministry of Works, has relinquished that post in order to return to the conduct of his own business, the specific task for which he was appointed having been completed.

TRADE NOTE

Messrs. Nicholls & Clarke, Ltd., of Niclar House, 3-8 High Street, Shoreditch, London, E.1, have taken control of the ironmongery business of Messrs. Carter and Aynsley, of Artillery Lane, Bishopsgate, which will in future operate from Niclar House, together with the whole of the staff. With the full use of the joint stocks, Messrs. Nicholls & Clarke state that they are in a position to give complete satisfaction both as regards counter and postal orders.