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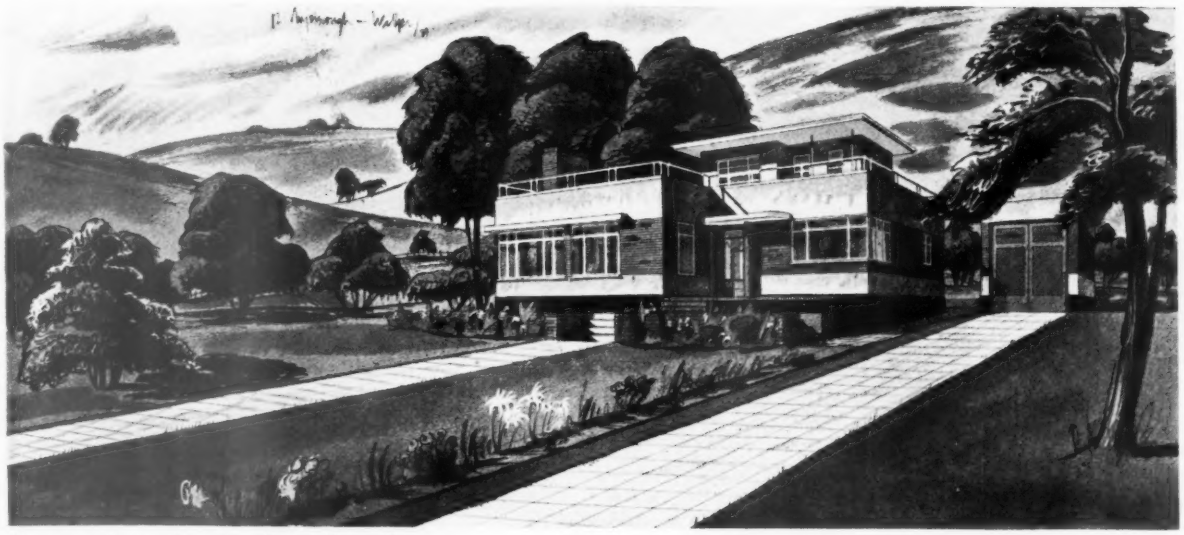
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, MAY 23, 1940. NUMBER 2366 : VOLUME 91

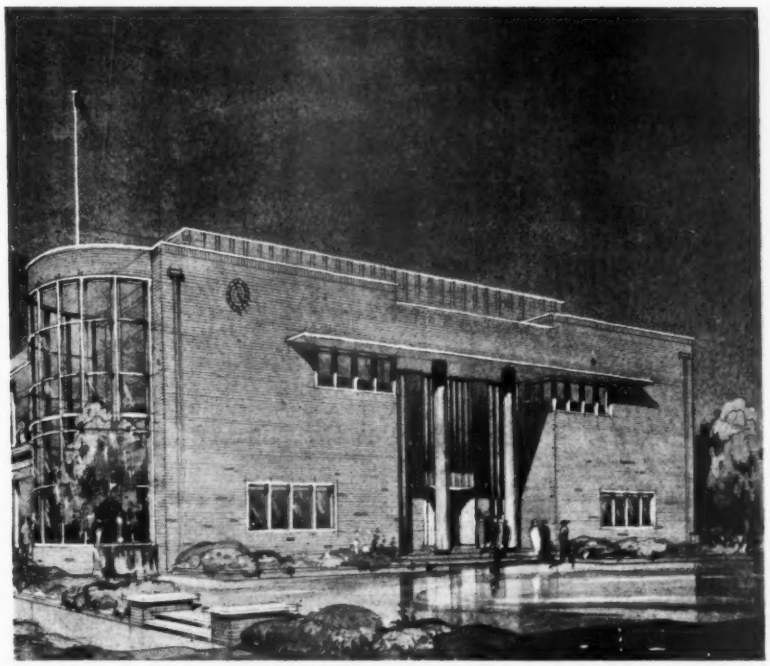
PRINCIPAL CONTENTS

ROYAL ACADEMY EXHIBITION



House on Sussex Downs. By J. Raworth Hill. Perspective by H. R. Myerscough-Walker (No. 1500).

Shops and flats, Worthing. By Frederick W. Mackenzie. Perspective by Cyril A. Farey (No. 1446).



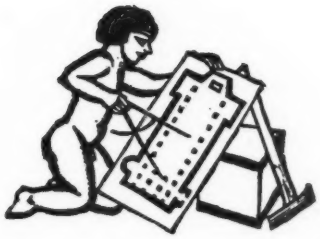
Britannic House club house: entrance front. By J. M. Wilson and H. C. Mason. Perspective by F. A. Evans (No. 1395).

AS IT IS

AS IT MIGHT BE

"SHOULDN'T THERE BE FREEDOM IN PARLIAMENT SQUARE?"

These illustrations appear, under the above title, in the "Railings for Scrap" Exhibition now being held at the Building Centre, New Bond Street, W.1. Top, Parliament Square as it is today: Bottom, as it would appear if the railings were removed.



TOTAL WAR AND *THE NEXT YEARS*

IN last week's issue of the JOURNAL the series of articles by Mr. Howard Robertson called THE NEXT YEARS came to an end at an unfortunate time.

It is very difficult when crucial events are taking place to think of much more than those events and the actions which must be taken to meet them. The publication of the concluding portions of Mr. Robertson's study of the building industry coincided with great military events—which still continue—and with the beginning of a new phase of industrial effort in which methods previously used to bring about a fuller use of the building industry will be quite useless.

Moreover, Mr. Robertson's articles were addressed to a building industry which seemed likely to have time, as it already had the desire, to consider the faults within the industry which had been shown up by the outbreak of war and to think over remedies which would be valid after the war as well as during it.

The inclination to consider reforms *within* the industry has now temporarily disappeared. Yet *The Next Years* should not be allowed to drift past without any thought being given to the suggestions it contained. Improvement in the use of the industry by the Government and its Departments may be now the most urgent need: but it is certain that if the responsibilities of the various sections of the industry and its professions had been clearly understood and acknowledged within the industry before war broke out, a great deal of the lopsided and wasteful use of building resources by those outside it would have been avoided.

This *internal* problem was the subject of *The Next Years*. It was a study of the aims, organization, defects and possible development of the building industry by an architect of very great experience. And, even if nothing more is possible at the moment, the main points of Mr. Robertson's articles should at least be noticed, and remembered as a sketch of reforms which must be carried out before the building industry will be fit for its contemporary job—in war or peace.

Mr. Robertson's main suggestions are few. He believes, first of all, that the Building Industries National Council should be given the support and the funds necessary to make it the General Headquarters for all questions which affect the whole industry. From this centre the industry's views on building matters of national importance could be put before the public with a force which its components, acting singly, cannot exert. And at this centre would be discussed ways of making building easier for all members of the industry.

No one can doubt that standardization could be increased throughout the industry with very great advantages. Mr. Robertson suggests the standardization of proved methods of simpler construction and of presentation in drawings; and the preparation of a catalogue of common faults in construction which would thereafter never be repeated either through ignorance or price-cutting. The aims of this collaboration between all sections of the industry would be to eliminate endless variations of trivial building details and to secure for the public minimum maintenance costs.

These are the two main suggestions made by Mr. Robertson. But on them depend two others: which, by being opposed to established practice rather than developments of it, run much more likelihood of being endlessly side-stepped.

The first is for the education in common, for the first years of their training, of all who build—of architects, engineers, quantity surveyors and building craftsmen. The advantages of such a system, by enabling young men to see exactly how their contribution to building fits in with all others—and to see it at a time when they are certain to remember it—are so great that it is certain, sooner or later, to become universal.

The second is for the partial abolition of the competitive tender: a suggestion which raises problems of great complexity which cannot even be touched on here. But it is at least probable that if shoddy building is ended, common methods of good building standardized and the functions of each section of the industry become thoroughly understood by all other sections, the arguments in favour of competitive tenders will become much less powerful—even to clients.

Such are the big reforms which Mr. Robertson advocates for the building industry.

It may be difficult for the industry to consider any internal reforms at present, or even for the next year. But before this difficulty of immediate action leads to the whole question being put out of mind, it is worth while for each member of the industry to ask himself: When *is* a good time for considering reforms? The answer is: *Never*—except for some tinkering with the idea in the depths of the worst slumps. Otherwise, each section plays for its own hand, generating an increasing friction within the industry for which clients pay in the first place and every person in the industry in the long run. Mr. Howard Robertson has put the matter in a nutshell—"If buildings were as reliable as motor cars, far more would be built."

It is for this reason that the JOURNAL hopes every member of the industry will remember Mr. Robertson's principal suggestions—they are short and simple—through whatever happens in the next few months, and carry with them a conviction that reforms within the industry are badly needed and both can and should be carried out.

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

THE RESEARCH BOARD

THE manifesto about the formation of an R.I.B.A. Research Board* has appeared at a time when it is bound to receive the minimum of attention. This is no reflection on those who issued it : but it seems typical of the ironic ill-luck which dogs all movements of reform in the building industry. No sooner are we arrived at some semblance of unity than something occurs—a trade recovery or, in this case, military events—which makes any forward movement fantastically unlikely to be accomplished.

*

The Research Board set up to put into operation the scheme now proposed had its origins in the rediscovery last autumn of the number of problems and interests which were common to the whole building industry : and in the realization that many members of the industry would have time at their disposal in which to study ways of increasing the efficiency of the industry's organization and methods. The new Board has drawn up a syllabus of fields in which research is desirable, and hopes that small research groups will be formed throughout the country —each to undertake the work needed in one of these fields.

*

The manifesto contains only a general indication of the scope of the proposed enquiry, and will no doubt soon be followed by the publication of the detailed syllabus. But even as it now stands, the most ardent reformers who retain any sense of wartime values will, I think, read its suggestions with misgivings.

*

It is only exceptional people who possess the powers of detachment necessary in time of war for thorough research into problems unconnected with the war, and many of these people have to continue to earn their livings. Yet the relatively small enquiries needed to suggest good ways of clinching and making permanent the present increased unity in the building industry are left out of a scheme which contains proposals for research into most of the activities and social needs which affect the building industry.

* Printed on page 532 of this issue.

It may be that the Research Board has taken the opportunity to make a list of all the problems of which further study would be desirable—with the intention of tackling them one by one down the years. But the manifesto appears to set forth a programme of *wartime* research. And surely the first quality possessed by such a programme should be that it is capable of being carried out during wartime—even a long wartime.

FIVE-POUND DREAM HOUSES

In a recent copy of a woman's weekly the romantic tale is told of "an ugly house" acquired, "never mind how," and restored to beauty by a woman who was accustomed to say that "making an ugly house attractive was one of the most stimulating problems any woman could be set."

*

She set upon this house eagerly. She was, it would appear, "an avid reader of advertising columns"—thank Heavens she had no architect to deluge with her budget of clippings—and "she soon discovered that builders have to be told what materials to use." Shrewd girl. The whole business, in fact, was just another of those clever little transformation scenes beloved by women's papers and accomplished simply by a pail of distemper, a few yards of chintz—madly cheap, my dear—and a firm conviction that only a woman knows how high to put the sink.

*

Unfortunately for the story, the accompanying photographs tell quite another tale, and seem to have, in fact, little connection with it. The house, far from being ugly, has rooms of considerable grace and dignity, with well-proportioned sash windows and marble fireplaces in the Adam manner. Secondly, although only a little money was available, it has been lavishly poured out on such luxuries as a slow-combustion cooker, a vitrolite-lined bathroom, and built-in wardrobes with hand-painted panels in the Pierre Jean (or Jean Louis) style. Finally, through one window can be seen an unashamed Packard. In short, there is no reader of detective yarns but would shoot the story to pieces inside five minutes.

*

What does it all matter? In two ways. Such articles mislead large—very large—numbers of women into believing a £1's worth can be had for a shilling : a particularly dangerous error in connection with houses. And by their constant repetition that good design and good taste can be mastered while eating a box of chocs. they make both ever more rare.

*

In wartime it seems additionally pointless to repeat that it ought to be the duty of the profession's Public Relations Department to conteract such propaganda. But we might try to remember it until after the war.

THE PANEL SYSTEM

In a note published on April 25, I quoted a statement, made in a report by the Advisory Panel to the Worcestershire Branch of the C.P.R.E., that :

> The Panel . . . was only allowed to criticize the elevations which faced the road, and since bad plans were the main cause of bad elevations, the Panel was powerless to bring about any general improvement.

*

From a letter which is printed on a later page of this issue, it seems that the Chairman of the Worcestershire

Panel has read into my note an accusation that his Panel has failed in its aims more conspicuously than other Panels. This was far from my intention. Indeed, it is obvious, from Dr. Farncombe's statement that 90 per cent. of all local plans are now submitted to his Panel, that its record is conspicuously successful in comparison with that of others.

*

But this does not affect my contention that Panels have not measurably improved the design of the three million odd houses built since 1919, that they cannot be expected to do so in the future, and that they help to build up in the public mind a false idea of the architect's function.

*

To the small owner and the small builder the Panel system presents a picture of the architect as a man wholly concerned with external appearance, and mostly with small details of external appearance. What is more, the public in general does not attach value to anything which costs nothing : and the Panel system reinforces their belief that the architect contributes nothing to a building which really matters.

*

In my view, the local benefit of Panels and the public spirit of those who serve on them must be weighed against these serious disadvantages.

MR. WILLIAM WALCOT

Among the names recently published in the Civil Pensions List was that of Mr. William Walcot. When interviewed by the evening Press, Mr. Walcot said he hoped it did not mean he was " done for," and that he liked to think it was given him because of his great Plan for London—an imaginative and beautifully presented scheme (exhibited some years ago at the A.A.) which involved the diversion of the Thames into a canal and the re-modelling of its present course as a boulevard.

*

Mr. Walcot is most famous among architects as a draughtsman. His virile perspectives, with their astonishing grasp of form and economy of line, have for many years been a feature of the R.A. architecture room, and his dramatic use of colour—it is said that he mixes with it brown sugar, glue and sealing wax—have brought a sparkle of life into that limpid fairyland. It is sad news that this year he is not represented there.

WHERE WE STILL ARE

I print below a dispatch from the A.F.S. correspondent whose reports on the Fire Front appeared in these pages during the opening weeks of last September.

*

Last Friday evening (May 10) I could not help making a comparison with another exciting Friday — September 1. The garage, the Great West Road style façade and the stout concrete columns were all the same : but there resemblance stopped.

*

On September 1 two-thirds of the A.F.S. personnel were slenderly equipped with tin hats and dungarees and averaged a previous training of seven hours. We had also two trailer pumps and, very late at night, a brace of taxis put in an appearance. But as there was no provision for attaching pumps to taxis the prospects for effective locomotion were poor. Contact with Control, by exchange telephone or messenger on a bicycle, made it likely that the call to action, like the willing response, would have been carried out in slow motion.

*

That this scene of British unreadiness should have been changed in eight months was only to be expected. Still, as I looked last Friday at the 2 heavy units and 2 trailer pumps glittering as well as anything can glitter under amber lights behind blue windows and festooned with the trappings of fully trained crews, it was reassuring to find that I could think of nothing which could reasonably be expected which had not been provided. Except, of course, a good peacetime fire in the next street.

THE ART OF THE INVENTORY

Emptying a house and storing furniture has been a common experience in the last nine months. It is a wearisome process ; mentally, in that it involves repeated decisions about the preservation or destruction of varied clutches of minor possessions ; physically, in the personal dismantling of built-in joinery which one would prefer not to be completely smashed and even more in the unfixing of fitness-for-purpose light fittings.

*

Nor do the ex-house-owner's troubles end with the departure of the vans.

There is still (an architect exile writes) the inventory to be checked a week or so later. In most cases identification is straightforward : " 2 silver oxt. curbs " are, for instance, plainly a pair of stainless steel fireplace kerbs ; and " 1 Slip Mat " is the best description I have yet heard of our hall rug.

*

But it is mortifying for an enthusiastic cinematographer to find his costly 35-mm. projector billed as a Magic Lantern. And it would be pleasant to know what " 1 Dutch Hoe " is, where it was kept, and what we have done with it all these years.

*

Most mysterious item was " two frames " (pictures being already accounted for). After several attacks on it by elimination, it *may*, we fancy, turn out to be two large set-squares.

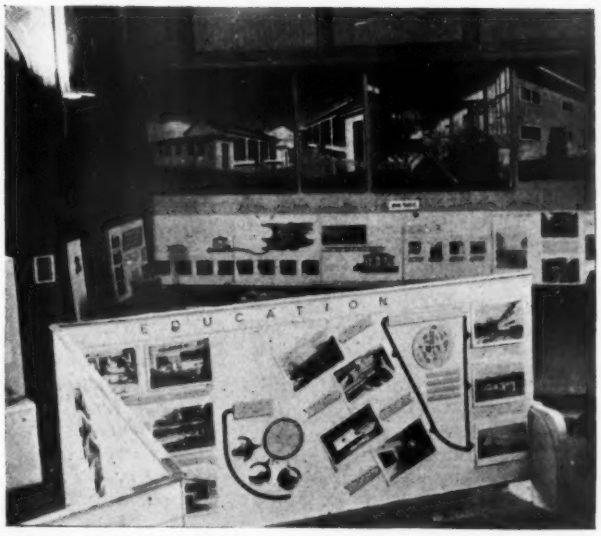
COVENTRY'S EXHIBITION

Last week I mentioned the exhibition in St. Mary's Guildhall, Coventry, in which assistants of the City Architect's Department and the local A.A.S.T.A. are trying to emphasize that even in these times Coventry's future development should be thought about : or at least kept in mind when placing wartime factories and building housing for workers in them.

*

Below I reproduce a photograph of this very well-designed exhibition taken from the gallery of the Guildhall.

ASTRAGAL



NEWS

THE ARCHITECTURE CLUB

At the last meeting of the Executive Committee of the Architecture Club, the whole question of the future activities of the club was discussed, and it was decided that, rather than suspend activities for the duration of the war, the Club should continue in its efforts to stimulate public interest in the cause of good architecture and building, particularly with a view to the changed conditions which will be apparent after the war.

In this connection, a series of supper discussions on the question of "How shall we plan our buildings for life after the War?" will be held as follows:

Thursday, June 13. (1) "In the Town." Thursday, July 18. (2) "In the Country." Thursday, September 19. (3) "On Our Holidays." Each discussion will commence at 7.45 p.m.

REGISTRATION

We have received from the Architects' Registration Council of the United Kingdom the text of the amended Regulation which has now been approved by the Privy Council. It is printed below:

A person shall be eligible for registration under the Principal Act if his application for registration be made before August 1, 1940, and if, having served before August 1, 1938, as an architectural assistant in an architect's office in the United Kingdom for a period of not less than one year, he proves to the satisfaction of the Admission Committee that on August 1, 1938, he was an architectural assistant and that he had been engaged in the study of architecture and execution of architectural work in any part of His Majesty's Dominions for at least seven years, and had received an architectural education and training equivalent in value to that normally received by an architect in the United Kingdom.

TIMBER CONTROL

The following notes have been issued by the Ministry of Supply:

The Minister of Supply has made the Control of Timber (No. 12) Order, 1940, which provides that, as from Tuesday, May 21, 1940, prices for home-grown timber may be negotiated between buyers and sellers in cases in which prices are not already fixed by the Control Orders and also in cases where prices are already fixed but in which the timber is of exceptionally large dimensions. In all such cases delivery of the timber may not be made until the negotiated price has been submitted to and approved by the Timber Controller.

The Schedule to the No. 12 Order makes provision for:

(1) the certification of "town" mills;

(2) the extension to home-grown sleepers produced in certified "port-city" and certified "town" mills of the increased charges which certified mills are at present permitted to charge for other timber converted by them; and

(3) maximum prices for home-grown timber items not shown in previous Orders.

As is the case with "port-city" mills, the grading of "town" mills will be determined in accordance with costs of production, etc., furnished by applicants who, in the first instance, should apply to the Timber Controller (Department III, Branch 6), Ministry of Supply, Clifton Down Hotel, Bristol, 8, for the appropriate form of application. The Minister may refuse any application for a certificate and may withdraw any certificate which has been granted.

Copies of the Control of Timber (No. 12) Order, 1940, will be obtainable on and after Tuesday, May 21, 1940, directly from H.M. Stationery Office, or through any bookseller, at the published sale price.

All stockholders of plywood are advised that returns of their stocks must now be rendered monthly to Timber Control Area Officers, irrespective of the quantities held by them. The minimum stock limit of 20 cubic metres below which returns have not hitherto been required has been cancelled.

SOUND TRANSMISSION IN BUILDINGS

With a view to developing methods of construction which will reduce noise in buildings—a subject which has been, and will be, of increasing importance in peacetime building—the Department of Scientific and Industrial Research has carried out investigations for the past few years at the Building Research Station and the National Physical Laboratory. The practical results of these investigations are embodied in a report published on May 21 by H.M. Stationery Office, price 4s., entitled *Sound Transmission in Buildings*, by R. Fitzmaurice, B.SC., ASSOC.M.INST.C.E., and William Allen, B.ARCH., A.R.I.B.A.

The report is divided into three parts, of which the first deals with the ways in which sound from various types of noises is transmitted through a building. The second discusses the insulation necessary to reduce the noise adequately, having regard to the conditions prevailing inside and outside the building. This is treated very neatly by a number of diagrams, which make no reference to units of noise, but from which the minimum insulation suitable can be read off. But as long as houses are built (as they usually are) with their parts solidly linked and continuous, there is a level beyond which the noise cannot be reduced, so the third section is devoted to discontinuous construction, a new structural technique developed during the course of the researches.

ANNOUNCEMENT

Messrs. Oliver P. Bernard and Partners have moved their offices to Bush House, W.C.2. Telephone: Temple Bar 2343.

OBITUARY

Death has occurred of Mr. George James Miller, of Glasgow, at the age of thirty-seven.

Mr. Miller, the only son of Mr. James Miller, R.S.A., was associated in business with his father. He specialised in hospital work, and among the buildings designed by him were the South African Pavilion at the Empire Exhibition, Glasgow, and the Glasgow Royal Infirmary Auxiliary Hospital at Canniesburn.

DIARY

Thursday, May 23.—CITY OF BIRMINGHAM COLLEGE AND SCHOOLS OF ARTS AND CRAFTS. Retrospective Exhibition of Students' Work. Until May 29. 10 a.m. to 6 p.m. BUILDING CENTRE, 158 New Bond Street, W.1. Exhibition: "Railings for Scrap." Until June 8. 10 a.m. to 6 p.m. (Saturdays, 10 a.m. to 1 p.m.).

Tuesday, May 28.—HOUSING CENTRE, 13 Suffolk Street, S.W.1. "Social Services in Scandinavia." By R. B. Williams-Thompson. 1 p.m. ARCHITECTURAL ASSOCIATION. "Economics of the Building Industry." By J. L. Gibson. Election of Officers and Council. 8.30 p.m.

Wednesday, May 29. I.A.A.S. Discussion at the Royal Society of Arts, John Street, W.C.2. "Maintenance of the Building Industry." Chairman: Sir Alfred Hurst. Speakers: Laurence Gotch, W. P. Reynolds, P. J. Spencer, R. Coppock, J. W. Laing, J. Sadd, C. S. Marriott, F. R. Yerbury, A. T. Pike. 6.30 p.m. Tickets obtainable from Secretary, I.A.A.S.

Saturday, June 1.—Visit to Hertfordshire County Hall. Architects, Messrs. James and Bywaters and Rowland Pierce. Party will leave Bedford Square by coach at 2 p.m. Tickets obtainable from Secretary, A.A.

Tuesday, June 4.—R.I.B.A., 66 Portland Place, W.1. General meeting, when Sir Charles Bressey will read a paper on the Report which he and Sir Edwin Lutyens, R.A., prepared entitled, "Highway Development Survey, 1937 (Greater London)." 8 p.m. HOUSING CENTRE. "Housing in Czecho-Slovakia." By Dr. Klein. 1 p.m.

Tuesday, June 18.—R.I.B.A. General Meeting. "Alternative Methods of Construction." By R. Fitzmaurice. 8 p.m.

LETTERS

Scrap Iron and Steel

SIR,—War requirements are absorbing all available scrap iron and steel, of which, in normal times, the demolition of certain types of buildings and the salvage of ironwork in various architectural forms, provide an excellent source of supply. The Iron and Steel Control is now intensifying its campaign for recovering scrap metal, and it is felt that architects could provide useful information on potential sources of supply within their own knowledge.

Industry has migrated from certain areas in the country leaving factories, warehouses, pitheads and other structures, which have hitherto not been worth dismantling. There is also a considerable quantity of iron in the railings that line our streets and disfigure our parks. Some, no doubt, are strictly practical, and a certain number have æsthetic value. Others, however, have neither merit nor usefulness, and the present need for scrap metal provides an opportunity to remove them.

I am asking your readers, therefore, if they will co-operate with the authorities by providing particulars of any derelict property from which a worthwhile quantity of iron or steel scrap might, on further investigation, be found to be available, and also of any railings or other ironwork which could be removed with advantage. Further inquiries can then be put in hand. It is suggested that if possible the owner, location, purpose and general description of the structure or ironwork should be given in each case.

As no hard and fast rule can be laid down as to what property or material to include in this survey, importance is attached to the professional experience and judgment of individual architects throughout the country, and these, I trust, will be made freely available in the national interest.

E. STANLEY HALL,
President, R.I.B.A.

The Panel System

SIR,—My attention has been called to a paragraph in a recent issue of your JOURNAL in which, under the heading, "Another Panel Fails," your correspondent "Astragal" emphasizes the difficulties under which the Advisory Committee of this Branch frankly admits that it labours.

But to admit difficulty is not to acknowledge defeat and I maintain that this Panel, so far from being a failure, has proved itself singularly successful and has exercised a profound and beneficial influence over building throughout the whole county.

To deal with one of his points. By no means all elevations are controlled by the plan of the building and in many of these cases the architect members make alterations which definitely improve their appearance. Thus fenestration is altered for the better, needless gables are cut out, bogus half-timbering is eliminated and more desirable roofing materials substituted for the cruder forms of asbestos tiling.

So highly do the County Planning Officer and the Urban and Rural District Councils value these "improvements" that fully 90 per cent. of all plans are submitted to the Panel and at least one Housing Committee only passes the plans of new buildings

"subject to the comments of the C.P.R.E."

Astragal may regard these improvements as purely minor, yet in my own profession the correction of a squint cannot be described as a major operation, but what a profound influence for the better it exercises on the appearance of the patient!

Astragal's comparison with the "last coat of paint" is singularly inept for, though this obviously cannot alter the design of the car, who fails to realize the difference which it can contribute to the beauty of the vehicle and indeed to its market value? And these are the precise results which the alterations effected by the architect members of the Panel produce upon buildings.

With Astragal's two desiderata the Panel is in whole-hearted agreement, and if he will read the report again he will realize that it is doing its very best to implement both. By a widespread scheme of education—in which the lay members of the Panel most cordially co-operate with the architects—it strives to show the public that a well-designed (which surely means architect-planned) house will be quite as convenient, and quite as inexpensive, as any building produced by an unqualified designer and that it will be infinitely more pleasing both to the owner and the onlooker.

W. T. FARNCOMBE

Representative of the Worcestershire Archæological Society. Chairman of the Panel Advisory Committee. Acting Chairman, Worcestershire Branch, C.P.R.E.

[*Dr. Farncombe's letter is referred to by "Astragal" on page* 520.—Ed., A.J.]

SIR,—Concerning the remarks under the title "One More Panel Fails" in "Notes and Topics" for April 25, I can only hope that the Worcestershire Panel will continue to function, though I fully sympathise with its position. I think that your statement, "Panels can no more improve the design of buildings," etc., is too sweeping. In many cases, Panels *have* been able to improve the design of buildings. I admit all the difficulties and all the disabilities—we have them in Cambridgeshire, in the limited area of the county in which we are able to function—but the only way to improve matters is with patience, courtesy and tact to do as much as one can. Architects themselves are not wholly free from blame, where Panels are concerned, chiefly owing to the refusal of many to admit that slow (even very slow) progress is better than no progress; and some measure of progress there undoubtedly is, where a Panel has the necessary determination and tact, and where a local authority can at least recognize that a building is not merely a front.

Cambridge. THEODORE FYFE

THE ARCHITECT AND THE BUILDING TRADE

[*By HENRY MORETON*]

"At the present time, the conditions of building practice rarely permit of the collaboration, from the outset, of the three main participants in the building programme. . . . The builder who is tendering . . . is really offering to supply at a fixed sum a commodity of which he can scarcely estimate the exact cost of production. . . . Standards are lowered. . . . As a matter of fact, many architects know that, in the majority of cases, the best all-round result in building is achieved by selecting the right builder for the job in hand and negotiating his employment direct on an agreed basis."

HOWARD ROBERTSON, F.R.I.B.A.

MR. HOWARD ROBERTSON has put forward a strong case for an alteration in the relationship between the architect and the contractor. His views will meet with great support, I hope, both from architects and builders. The deficiencies of the tender system are well known to one and all, to quote Mr. Damon Runyon.

I should like to widen the scope of this campaign to include the relationship between architects and the whole of the building industry, including sub-contractors and manufacturers. At present, a high and unscalable fence, topped by barbed wire, separates Trade and Profession. It is almost true to say that a sort of sporadic guerilla warfare rages continuously, each party, apparently, suspecting the methods of the other and looking for an opportunity to score off it.

Yet it seems obvious that fundamentally the interests of Profession and Trade must run side by side. Each is dependent upon a prosperous Building Industry, and the industry itself, in normal times at any rate, thrives or wilts largely according to the state of its own efficiency. If building is well and economically carried out, more people will build. Suspicion, quarrels and double-dealing between architects and the Trade merely spell fewer clients for the future. A manufacturer trying to sell a new material wants to see that material intelligently and properly used, if only in order to have a good advertisement for it. The architect who is using it wants to make a good job because his own reputation depends upon it. The building owner certainly wants the building to be satisfactory. The interests of all these, therefore, are identical and you would naturally expect close and eager co-operation.

Yet in practice what do we find? Ask an architect what he thinks of the Trade and he will probably say: "Well, I know some good firms and a few of the men I deal with come close to being personal friends, but taking them by and large, they are a pretty disappointing lot. They are out for what they can make and as long as they get their orders they don't mind much what they do or say. They worry the life out of me with letters, circulars, catalogues, 'phone calls and travellers. If I saw a tenth of the people that call, I would never get any work done. Most of those I do see either know very little about what they are selling, or, at all events, seem to prefer to talk about any subject other than their own. If they do offer any professedly helpful advice, it always seems to turn out very much to their own advantage. When I do have a job to give them their chief object seems to be to see how high a price they can stick me for. They will often try and dodge my specifications, and if anything goes wrong with the job they always make out it is somebody else's fault."

Well, perhaps the average architect would not be quite so sweeping, but each of the indictments will find its supporters from some architects; in other words, it is a composite, gloomy picture.

Now let us try the other side of the fence. "These architects," says the sub-contractor, "are a conceited lot. A few of them are really nice fellows, but the rest seem to think they are noble gentlemen reluctantly forced to soil their hands by dealing with tradesmen. They think they know everything. They never seem to realize that on our own subject we are bound to know more than they do. They resent our advice, if we are rash enough to offer it; they won't give us a chance to tell them about what we make; they disregard letters and callers; but if they should want us, we have to be round at their office within ten minutes of the summons and give them a price on the spot. Then we hear nothing further for perhaps six months and then, if we are lucky, they ring us up and say they want the goods on the site tomorrow morning. They never understand that special designs must be more expensive than our standard lines, they never think of asking our sizes before they begin the job, and when they find the standards won't fit, tell us our sizes (which we selected with great care as a result of long experience) are all wrong anyway and nobody could possibly use them. If the job goes wrong it is always our fault and not their own bad design or refusal to follow our instructions."

Well, there you are, gentlemen; taken side by side these statements agree about as well as Dr. Goebbels and Sir John Reith. Now some of the details of both these pictures are just completely wrong; some merely distortions of the truth; but hidden away are some solid facts, and I think it would pay every architect and manufacturer to weigh up carefully his own attitude to his opposite number and then try to look at the picture from the other side of the fence.

This war has provided many of us with a good deal of free time for quiet reflection, and we shall be doing something constructive for the future of the building industry if we can improve the degree of co-operation between architects and the Trade.

As it happens, it has been my lot to spend quite a number of years on both sides of this thoroughly inconvenient and awkward fence, and here, for what they are worth, are the suggestions I should like to make.

There are two main introductory links between architects and sub-contractors :

(1) The printed word. This ranges from advertisements in the technical papers to catalogues, brochures and leaflets sent through the post.

(2) Personal representation—i.e. interviews between the architect or his assistant and someone from the commercial firm, whether it be the managing director himself or a salesman whose income consists of a commission on any sales he may create.

In both of these contacts it is the manufacturer who is the attacker, as it were, and the architect who is on the defensive, and, as in war, it is the attackers who dictate the type of campaign. The manufacturer has, in fact, generally misunderstood the nature of his quarry. He persists in confusing the technician with the ordinary general public. He issues a flood of literature or advertisements on the lines of: " Mothers, think of your children shivering through the long winter nights . . . line your house with Brown's insulating material and keep the house cosy." Alternatively, if he lacks this ingenious though misplaced imagination, or possibly realizes its futility as an approach to a technical man, who is seldom the mother of children, he falls back on bare statements such as : " Best quality insulation, as used by a super-super-cinema, Leicester Square. James Brown & Company." Now the architect knows a good deal about insulation, is probably convinced already of its desirability and is genuinely anxious to know the best method and the cost of achieving it, yet he is not helped by either of these statements, but is merely irritated by them. What he wants is real information that will tell him whether the material advertised is the one he wants. Almost all advertisements, and the great majority of catalogues, do not give the information the architect wants. The outstanding exceptions, of course, are the JOURNAL Information Sheets, which most architects collect and use without any special encouragement or badgering from manufacturers for the simple reason that they give practical information that is badly wanted. This business of the printed word is entirely up to the manufacturers, and they would be amazed at the different reception they would get from architects if they only troubled to organize their literature from the *architect's* point of view. The style of presentation is more or less immaterial. It can be the purely utilitarian style of the Information Sheet or the dramatised version of an ordinary advertisement. What counts is that the story of the material or firm shall be told from the architect's end of the telescope, and not that of the manufacturer or sub-contractor.

The position with regard to personal representation is rather different, and I think that both sides have contributed to a situation that each would agree is rather unsatisfactory. A personal interview is generally necessary at some stage before an architect can decide to include material or equipment in a building. There are questions he wants to ask regarding the particular job which even the best of literature, giving general information, will fail to answer. The manufacturer, on his side, realizes that if he can speak personally to the architect he is more likely to get an order. Therefore every manufacturer sends out representatives to chase the quarry. It follows that the architect's office is thronged with callers, and if the architect sees more than a proportion of them, he will get very little work done. As a result, the majority of the representatives are sent away unseen.

Now the unfortunate consequence of this is that the manufacturer soon finds that his representatives are forced to spend the best part of their day hammering on unresponsive doors. Good, trained men who really understand their job are too expensive to waste in this way, and he replaces them, therefore, with " super-salesmen " with nice glossy hair and a fund of cheerful chatter whom he can hire quite cheaply but who definitely do not know their job at all from a technical point of view, so that when the architect does spare time to see a representative, he too often finds that he has wasted it to no purpose, because he has not been able to get the help he was seeking. It is this vicious circle which produces most of the complaints from both sides which I outlined earlier. The representatives complain that the architect will not see them. The architect in return complains that the representatives do not know their job. Meanwhile, the occasional good representative gets the same treatment as his incompetent colleagues and is annoyed because the architect will not give him a chance to offer good advice, which, of course, the architect never for an instant dreams him capable of doing.

The solution of this difficulty is not so easy as that of the printed word, because it needs co-operation from both sides to overcome it. Firstly, the manufacturer must learn that there can be no point in sending out a representative who is not qualified to represent the firm (incidentally, one of the causes of the architect's belief that manufacturers are always " on the make " is that the representative himself is often exactly of that type). It is better to have no representative than a bad one. A good one will have to be highly paid and he cannot afford to waste his time. He will therefore call on architects mainly by appointment, and not normally thrust himself uninvited into a queue outside the office. Secondly, the architect must be willing to go half-way to meet the Trade. He must take the trouble to read the literature or advertisements issued (which will, as I have suggested above, be of a different type to those normally used at present) and will make appointments to get any further information he requires. He will also, whenever possible, spare a few minutes to see casual callers, but they on their side will be brief and to the point. Chats on the weather or the political situation will be rigorously barred. If the representative shows he does not know his job he should be put on the black-list and never invited in again. If he proves himself useful he will obviously be welcome again. In larger architectural offices it should be possible to employ an assistant to see all callers and pass on to the chief only such as seem useful. The manufacturer will quickly learn that it pays only to have the right type of man to represent him, and the super-salesmen will return to their vacuum cleaners.

I am certain that architects have a lot to learn from the Trade. The ordinary building owner is not particularly interested in æsthetics. He is far more impressed by comfort and efficiency in the equipment. Design and planning are taught at the architectural schools, but materials and their use, and equipment generally, the architect must learn for himself—Where? . . . From the Trade. That is why really good building can never be achieved without a close partnership between the architect and the Trade.

Nearing completion : Church House, Gt. Smith Street, S.W. By Sir Herbert Baker, R.A.

View from north-east

CHURCH

AT MILLHOUSES, SHEFFIELD

DESIGNED BY J. AMORY TEATHER

SITE—A restricted one in a residential area with stone-built houses on both sides. There are falls of 2 ft. from west to east and 4 ft. from north-west to south-east.

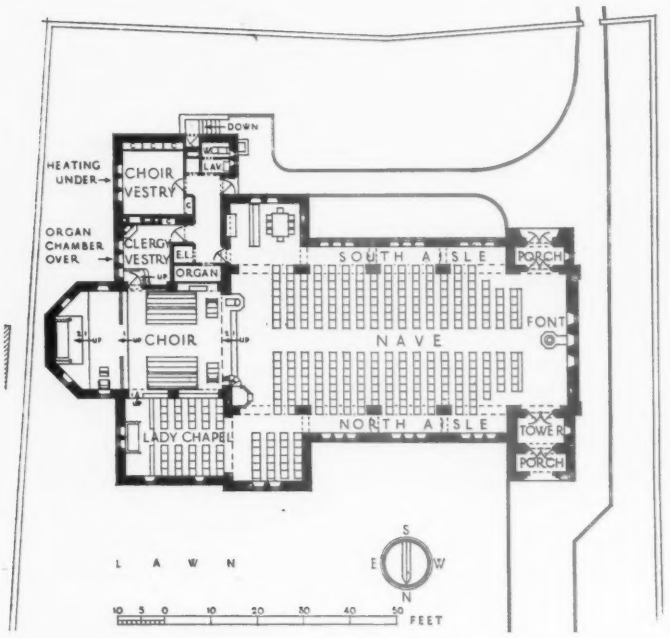
CONSTRUCTION—External walls are of solid rubble stone, 1 ft. 11 in. and 2 ft. 3 in. thick, with stone arches for the majority of the windows and stone lintols for others. The only brickwork is in the thin internal walls of the vestries. Roof is carried by steel principals, the lower members enclosed in concrete and faced with timber where seen below ceiling.

EXTERNAL FINISHES—External facings are random snecked gritstone rubble showing a variety of colour from light honey to rusty brown, with a rubbed-off lime mortar joint, the sand being crushed sandstone ; the quoins are hammer dressed wallstones. Cills, heads, jambs, corbels, weatherings and door mouldings are hammer dressed (nine pointed) gritstone of similar colour to the general walling with a brown veining. There is carving in low relief on the caps and label mould of the north porch. Roof is covered with hand-made sand-faced plain tiling of a dark grey-brown colour. Windows are filled with leaded lights of hand-made Norman slab glass in 7 in. by 5 in. squares.

Left, children's corner from nave; right, view of choir, showing organ.

PLAN—Nave, including transepts (an arcade of three bays and baptistery), is 72 ft. 3 in. long, 28 ft. 6 in. wide between arcades, and 40 ft. 3 in. wide between aisle walls, 22 ft. high to bottom of sloping sides and 27 ft. 6 in. to flat centre portion of ceiling. South transept is used as a children's corner. The choir of two bays, terminating in a semi-octagonal sanctuary, is 37 ft. 9 in. long by 21 ft. wide, and the same height as the nave. Heating chamber is placed under the choir vestry at the lowest part of the site. Total seating accommodation, including the choir, transepts and nave, is 400.

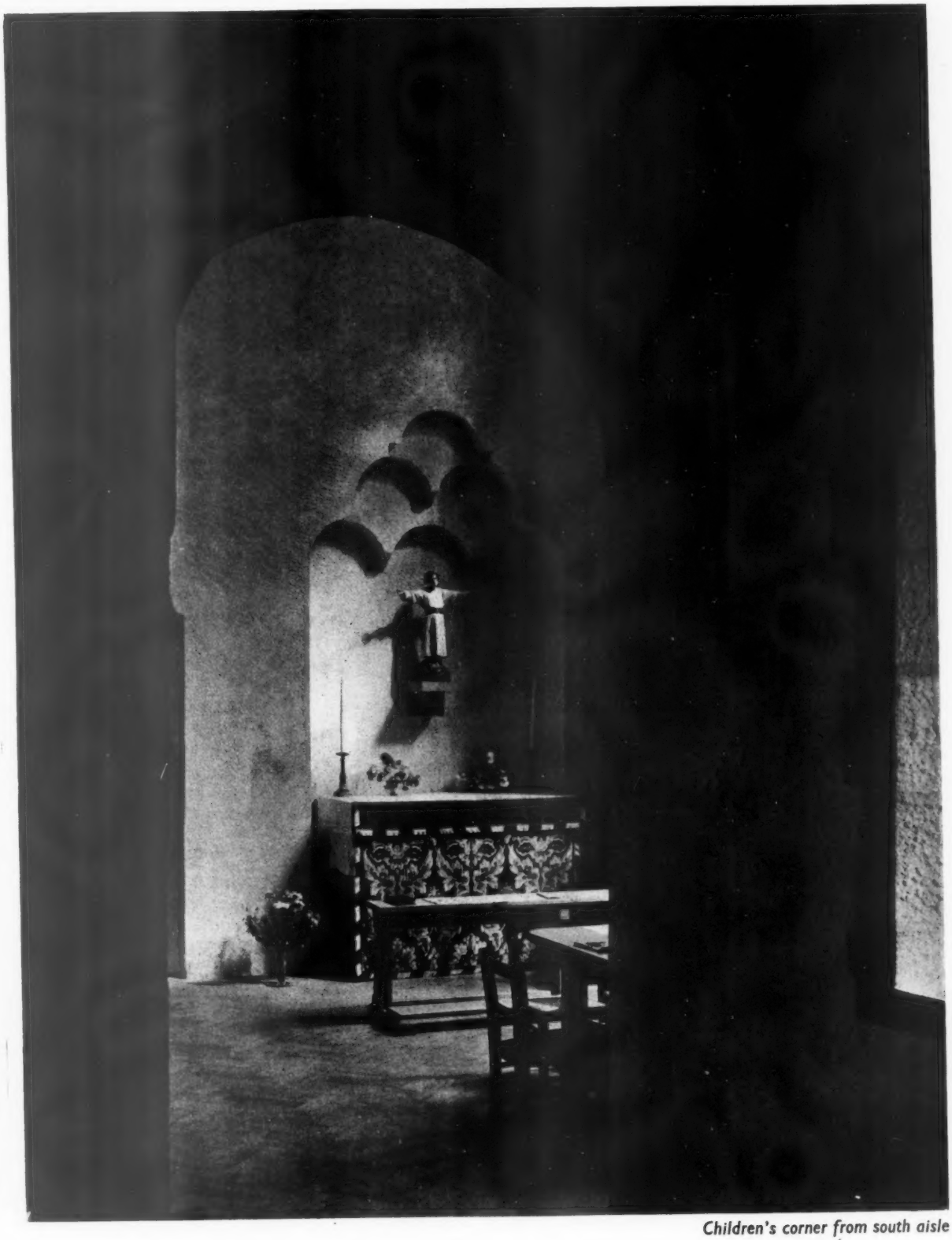
INTERNAL FINISHES—Arcade piers, quoins, arches and window jambs are the same hammer-dressed gritstone as the exterior, the remaining wall surface and ceilings being covered with a lime plaster of similar natural colour and rough texture. Roof trusses and purlins are cased in Oregon pine bleached to a natural oak colour and picked out in mediaeval colours. Roof truss and purlins of the Lady Chapel, all doors, choir stalls, organ case, sanctuary fittings, book stands, tables and chairs, are in natural oak, wax finished. Floors generally are finished with oak blocks ; choir, sanctuary and porches are paved with gritstone. Pulpit, lectern and font are of gritstone with low-relief carved bands. Colour scheme generally is stone, pale amber relieved by a little green and blue in the windows, ultramarine, crimson and white on lighting fittings and roof of nave. Choir and sanctuary have a little more colour, picked out in gold with coloured emblems on shields in the cornice, and culminate in the long blue and gold curtain, hanging from the cornice to the top of the green dossal and riddel curtains, flanked by oak riddel posts and oak standard lights. Lady Chapel colour scheme is of blue and gold.



PLAN

Nave looking east

CHURCH AT MILLHOUSES, SHEFFIELD



Children's corner from south aisle

DESIGNED BY J. AMORY TEATHER

The font

SERVICES—Nave and transepts are lighted by pendant fittings designed by the architect, and the Lady Chapel and chancel by concealed reflectors. Heating is by a natural circulation of warmed air which enters by a grating in the choir above the vestry door and returns for re-circulation through a floor grate near the lectern.

COST (approximately)—	£
Building and fees (189,376 cub. ft. at 11d. per cube foot)	7,300
Furniture and fittings	770
Organ, including oak case	700
Total cost	£8,770

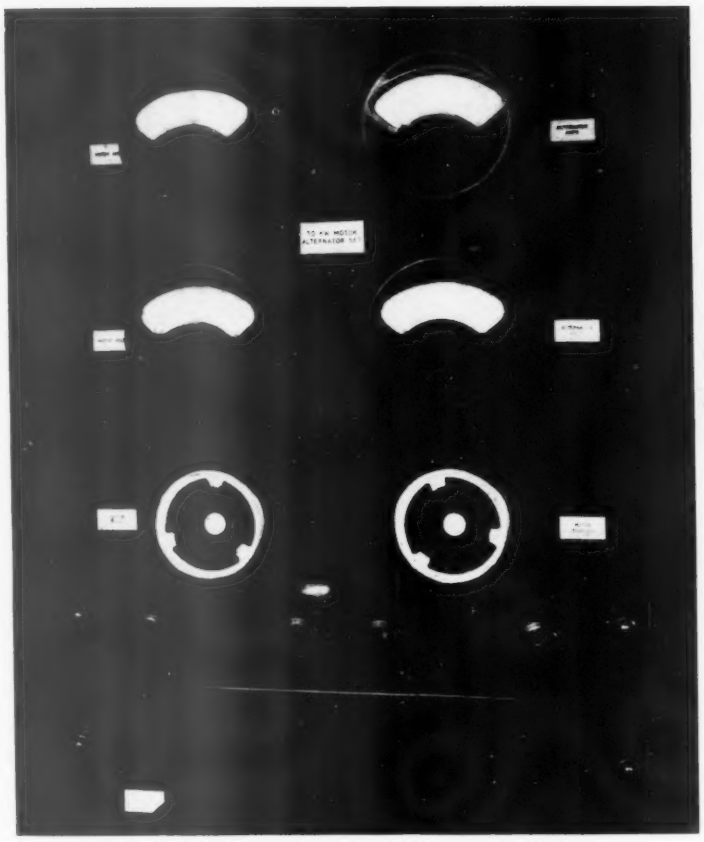
General contractors were D. O'Neill and Son.

For list of sub-contractors and suppliers, see page xxvi.

North porch, impost

CHURCH AT MILLHOUSES, SHEFFIELD

DESIGNED BY J. AMORY TEATHER



Part of a G.E.C. display, illustrating the effects of luminescent powders and paints.

Left: A power station switchboard treated with fluorescent paints activated by electric discharge lamps.

LUMINESCENCE IN BUILDING

A short survey of recent developments in luminescent materials and their present and future applications in the lighting and equipment of buildings.

By OLGA GEMES

I. Definitions and Raw Materials

LUMINESCENT substances are those which, when irradiated —that is, activated—by certain kinds of light, themselves emit light without rise in temperature.

In one group of luminescent materials, this re-emission of light stops almost at once when the actuating light is cut off: in this case the re-emission is called FLUORESCENCE.

In another group, the re-emission continues for a long time, to a steadily decreasing extent, after the light source has been switched off: the re-emission is then called PHOSPHORESCENCE —a quality of luminescent materials which has been used commercially for a long time.

Luminescent materials can be irradiated by visible light or by ultra-violet, cathode, alpha, or X rays, or in other ways.

The most important luminescent powders are: Zinc Sulphides; Earth Alkaline Sulphides; Tungstates, Silicates, Borates and Phosphates; Uranyl Phosphors; and certain organic materials.

Zinc and Zinc-Cadmium Sulphides are the most successful materials for use in decorative and A.R.P. illumination. They are brilliant and stable, have a wide variety of colour, and a long afterglow.

Earth Alkaline Sulphides—Strontium, Calcium and Barium Sulphides—are inferior in these qualities save for a long afterglow. But they are cheap and their instability can be partly overcome by a special lacquer.

Tungstates, Silicates, Borates and Phosphates are stable and have properties which are important for use in luminous tubes.

II. Applications of Raw Materials

Luminescent raw materials can be incorporated in paints, in vitreous enamels, and in plastics and glass. They can even be printed.

Luminescent paints and dyes may be applied to wood, metal, textiles, paper and other materials. Lead, iron, copper and acids have a poisonous effect in combination with luminescent paints which is offset by a white undercoat containing a neutral pigment—such as titanium oxide.

Paints can be applied either by brush or spray.

III. Irradiating Lamps

Owing to the relatively weak glow which all luminescent materials emit after the irradiating lamp is removed, electric discharge lamps with ultra-violet glass filters are used to maintain a brilliant re-emission. These lamps give out only a small amount of visible light, and burn in any position from A.C. supplies between 200–260 volts with a life of 1,500 hours. The auxiliary equipment consists of a

reflector and an inductance coil for stabilizing the arc. Two examples are given below.★

If this type of lamp is used for A.R.P. purposes or for external illumination in wartime, the small amount of visible light given out by the lamp must be screened from above. The luminescent surfaces, though brilliant in themselves, emit no appreciable visible light and are therefore particularly suited for use in foyers, display windows and elsewhere in wartime.

Another type of irradiating lamp is the Argon, which works direct from an ordinary lighting circuit. The bulb is of ordinary clear glass, but as the visible light emitted is very small no ultra-violet filter is required. The 5-watt Argon lamp is very cheap, but the luminescent materials have to be placed very near it and therefore its uses are limited.

It is essential, when luminescent materials are used decoratively, that no visible light should be present—since a small amount of visible light greatly reduces the brilliancy of effect. No biological or any unhealthy effect is caused by the mercury vapour lamp *with black glass bulb*, which emits only long-wave ultra-violet light. This produces fluorescence in the eyeball and therefore a sort of "glare" effect may be observed, if the eye is looking straight into the lamp. The effect is purely physiological and it may partly be remedied by adding some visible light to the ultra-violet beam. Because of the addition of this small amount of visible light, the lamp should not be directed to the sky.

IV. Uses in A.R.P.

Luminescent materials have many possibilities of effective use in A.R.P.—and particularly the phosphorescent group.

Where there is a danger of electric power being cut off, and even of emergency lighting being damaged by blast, phosphorescent signs to shelters, emergency exits and so on would continue to be illuminated.

This is particularly important in factories, power stations, telephone exchanges and similar key points. All important instruments and gauges, staircase rails and door handles can be treated with phosphorescent vitreous enamel.

In many plants—particularly where there is polished machinery—luminescent lighting has great advantages over other sorts of emergency lighting in wartime, and is the perfect illumination for peacetime as well, for the following reasons: The light density is low and therefore there is no glare. All essential objects are well lighted. In such plants the irradiating lamps should light the instruments from behind and above the worker. There is no danger of the worker diminishing the re-emission by being temporarily between the lamp and the illuminated media because of the phosphorescent quality of the paint.

A new weather-resisting zinc sulphide is now available which can be used as a ceiling or wall paint either externally or internally. It is phosphorescent in the dark after excitation by daylight. Its use in hospital wards and corridors, emergency exits, operating theatres and anywhere else well lighted in daylight, ensures a certain illumination throughout the night.

V. Peacetime Uses

The most obvious peacetime use of luminescent materials in architecture is for lighting schemes of a spectacular kind: particularly as such effects can be obtained very cheaply.

Foyers, cocktail bars, auditoria, stage decorations, display windows and exhibitions may all be expected to use luminescent materials in one of their many forms.

Wall papers and textiles can be printed or dyed with luminescent pigments; and an American patent has already been filed for a fluorescent

★

Watts	Type	200–260 volts only		
		Length	Diameter	Price
		In.	In.	s. d.
80	Mercury Vapour Black Glass Bulbs	7	3 9/16	40 0
125		7	3 9/16	47 6

(From the Catalogue of the General Electric Co., Ltd.)

Above: black glass mercury vapour lamp with Gecoray reflector and choke. Right: 80-watt black glass bulb.

Factory gauge room lighted with fluorescent tubing.

Christmas display in a Birmingham store, lighted by fluorescent pigments activated by ultra-violet lamps. (Exposure for photograph was 3 minutes.)

carpeting for use in theatre gangways. The Etablissement Kuhlman of Paris has produced the materials in two plastic forms. One is called *Parilithe*, which can be obtained in rods which emit brilliant colours under ultra-violet light. The second, called *Glass Pollopas*, is transparent both under visible and ultra-violet light and can be obtained in sheets, blocks and rods in several colours.

Another plastic developed by the Etablissement Rhône-Poulenc (suppliers, May and Baker, London) can be obtained both in sheets and yarns.

Apart from large - scale uses, luminescent materials are now being incorporated in many other items of building equipment. And though no doubt such applications will be regarded as fads or novelties for a year or two, they will end by being taken for granted and even be regarded as essential conveniences.

Fluorescent tube lighting in the Quality Inn, Leicester Square, W.C.2.

For example, from synthetic resins luminous light switches, door handles, hand rails, wireless sets and bedside table-tops and trays have been produced. Fluorescent glasses and table ware, possessing brilliant green and blue phosphorescence, have been produced by Messrs. Pyrex for use in a stage scene. The ceramic industry has also produced luminescent glazes.

It is therefore certain that the first years of peace will see the rapid development of luminescent materials in a very great variety of forms.

VI. Fluorescent Tubes

The development of luminescent materials to produce fluorescent lighting tubes is of particular importance because of the advantages such tubes have over the common Neon tubes.

In fluorescent tubes the ultra-violet light, which is wasted in Neon tubes, is converted into visible light and the efficiency is thus markedly increased. A great range of fine colours is available and a "daylight" effect can be obtained.

Thirdly, although there is some stroboscopic effect (flicker) from fluorescent tubes, this occurs to a much less degree than with Neon tubes. This is because the temperature in the tubes remains low enough to enable the inside of the tube to be coated with fluorescent powder and the afterglow tends to cancel out the cyclic flicker of the current.

These tubes are available in two forms :

(*a*) *Fluorescent, low-pressure mercury vapour discharge tube of high voltage.* The luminescent powder is coated on the inner surface of the tube and fixed with a binder. The economical length is about 9 feet. Tubes may be curved in any way but straight tubes are more efficient. Such tubes can be made in many colours, and a white tube is already on the market. As there is no glare and practically no flicker, these tubes are very suitable for all interior decorative schemes.

(*b*) *"Osira" mains voltage fluorescent tubular lamp.* This lamp, which is claimed to combine white colour, long life, cool burning and low surface brightness, has just been developed by the General Electric Co. The same quantity of light can be provided at a third of the operating cost of the ordinary tungsten lamp and the lamp lasts twice as long. Its length is five feet.

It appears likely to prove an ideal light source for shops, factories and public buildings and can also be used for indirect lighting.

There is also available a *fluorescent mains-voltage high-pressure mercury discharge lamp.*—In this case the fluorescent powder cannot be applied to the inner surface because of the heat. An outer glass casing is therefore provided and the powder is applied to the inner surface of this casing.

The light efficiency is not much increased, but the colour effect is greatly improved, and a warmer and truer daylight colour can be obtained.

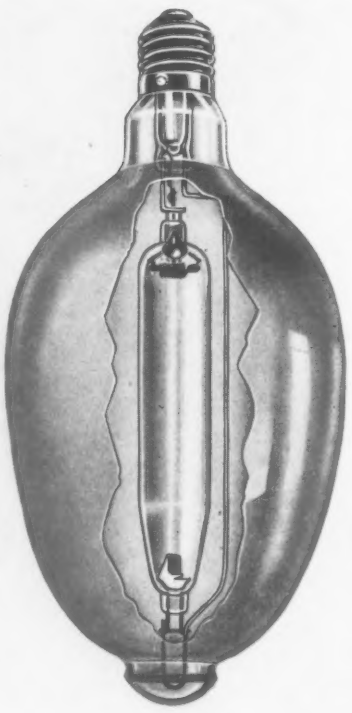
VII. Luminescence in Building Research

Many substances are slightly luminescent, and by examination under ultra-violet light the strength of mixtures, origin and permeability of materials, cleavages and moisture become apparent in building materials more readily than by other methods.

Stone specimens have been saturated with fluorescent materials and cleavages and degree of penetration studied under U.V. light. Cement mixtures have been graded as to their strength by comparing them with a standard fluorescent colour scale. The degree of penetration and composition of asphalts, tars and bitumen have been analysed, and glass specimens of different origin have shown different fluorescence, so that manufacturers can distinguish by this method between their own and other products.

Old marbles and new or old recut show different fluorescence, and an examination of the statue of Diogenes in the Metropolitan Museum, New York, has revealed that only the lower part is ancient. Old woodwork can also be distinguished from modern work by its characteristic fluorescence.

[*The author is indebted to the General Electric Co., Ltd., for the photographs which illustrate this article.*]



A 400-watt mains-voltage mercury discharge lamp

R. I. B. A.

RESEARCH BOARD

A Statement of its Formation and Aims

In the years since the last war the many branches of the British building industry have acquired from various causes a greater cohesion and unity than ever before. During this period, too, the industry has largely abandoned a traditional approach to its problems in favour of a scientific examination.

Such a change of outlook has involved much research. But while the structure of the industry has achieved a considerable degree of internal organization, the correlation of research—both executed and to be done—has lagged behind.

The present war has served to show the extent to which the many sides of the industry, both professional and commercial—architect, surveyor, engineer, contractor, operative, supplier and manufacturer—are dependent on each other. To the extent that many of the best brains of the industry are unemployed it has also provided—for a time at any rate—the necessary leisure during which to take stock of the many problems which are presenting themselves now and will arise in the post-war period. There is no doubt that the industry has the power and ability, if it has the will, to provide against any repetition of the disappointing results of the chaos of the post-war period of twenty years ago.

The Council of the Royal Institute of British Architects has appreciated the need for a systematic study of all these problems. It has been urged not only by its own members, but by outside bodies, to set up the machinery for such a survey.

A special committee has been engaged in preparing a syllabus of research and methods by which this could be carried out; and as a result the R.I.B.A. Council has appointed a Research Board to put the scheme into operation.

The syllabus covers certain aspects of rural building requirements, urban housing, materials, costing, legal and building regulations, town and country planning, health and recreation, and unification and standardization. Its scope is regulated by the desire to cover fresh and unexplored fields, and to deal with broad principles rather than with the details of actual buildings.

A further series of committees represent an architectural science group, whose object is to study and report on scientific developments that are applicable to building, and on the use of scientific methods in building. The group has the close collaboration of the Building Research Station of the Department of Scientific and Industrial Research, and includes among its personnel not only members of the Royal Institute of British Architects, but persons distinguished in science, engineering, research and technical education.

Under many of the headings of the syllabus considerable research has already been done, but much of this requires collecting and correlating. The method of approach would appear to be first the undertaking of a general survey of particular problems in order to collect existing information, and secondly a formulation of the directions in which further study is desirable. Such further studies would form the nucleus of subsequent items of research.

Much of this work is long overdue; not only will it be urgent after the war, but it is likely that then there will almost certainly be little time in which to do it. Centralized research will make a substantial contribution to maintaining the economic strength of the whole building industry, besides preventing many of the mistakes that were made by all parties concerned with reconstruction after the last war.

The organization required to undertake the work must be of a flexible character. The Research Board visualizes the setting up of small research groups all over the country, wherever there is manifest the desire to help. Such groups will undertake surveys of certain clearly defined problems, agreed by the Research Board, to whom the reports will be sent.

Reports on different aspects of a particular subject may be re-issued to an existing group, or to a specially formed group, for co-ordination or for additional research in certain directions. The Research Board will thus act as a co-ordinating centre to build up the research into a related whole for subsequent publication under the ægis of the R.I.B.A. It is in order to facilitate the building up of the whole research in this way that the Research Board has suggested the headings in the syllabus.

The Research Board suggests that groups should select one or possibly two related items from the syllabus, and should confine their research within these limits. The Research Board must stipulate that any research which falls outside the suggested syllabus should not be undertaken without the Board's authority, if this research is to be included in the scheme. The Research Board has appointed a full-time secretary who will be available to give advice to any group and to act as a liaison between groups and the central co-ordinating body.

The constitution of an individual group may, of course, include anyone interested and willing to co-operate either as a member of a group or as a consultant on particular points. The Research Board already has the active co-operation of various bodies, including the Building Industries National Council.

The Royal Institute of British Architects is fortunate in being able to enlist the support of its many influential allied societies, who by their location throughout the country are in a position both to instigate and lend help to research groups wherever they may be formed. The Institute is confident that such co-operation will be forthcoming.

It is obviously difficult, if not impossible, for the Research Board itself to originate the many groups which they hope to see in existence, whether as a group of architects and others in a town, a university, the headquarters of an allied society, a school of architecture or art, or a technical school. But the Board will be willing to do all in its power to help the formation of groups wherever it is learned the desire for such groups exists.

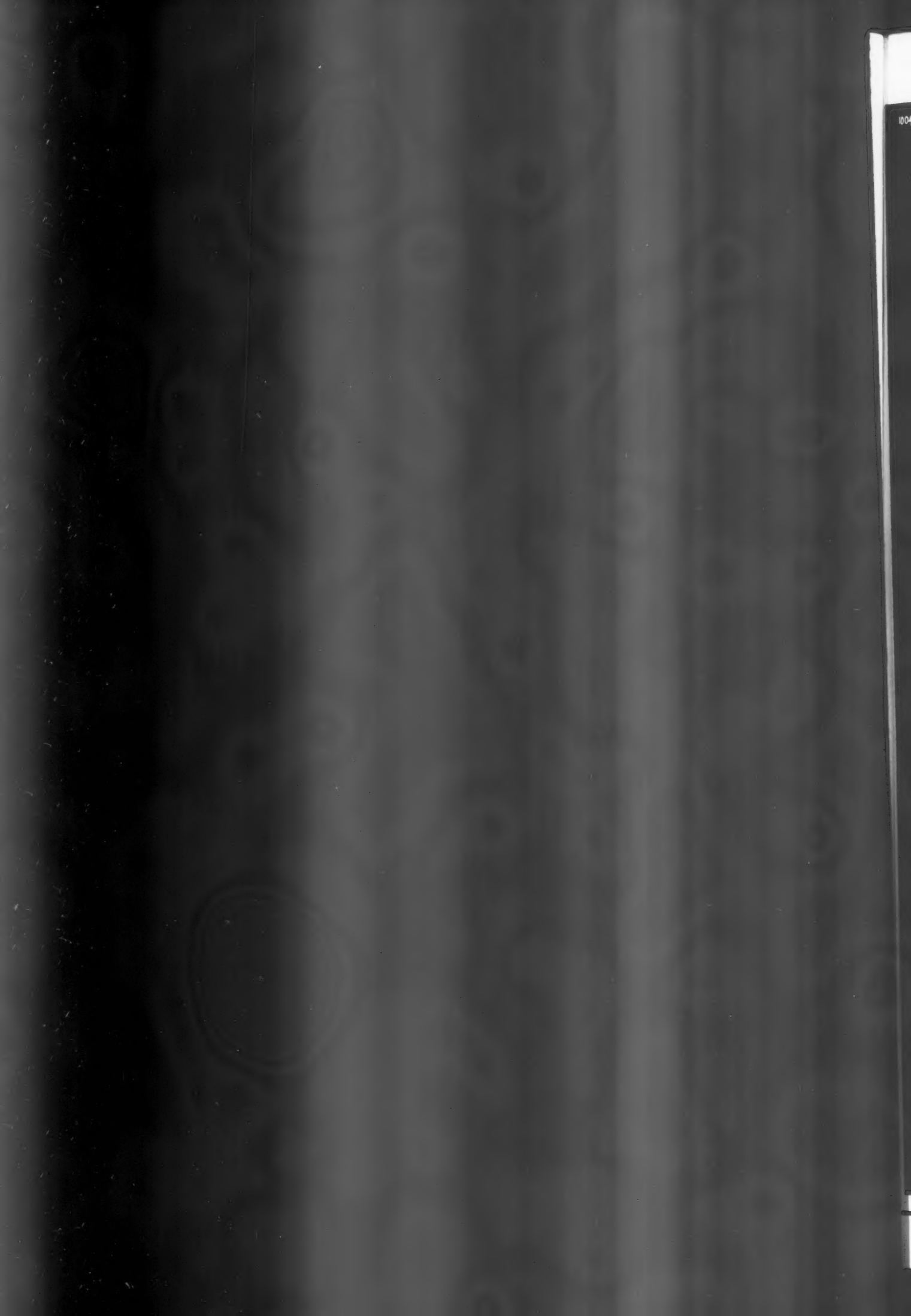
They also ask the active co-operation of bodies which can assist in providing space for group meetings and discussions, and even perhaps clerical assistance, as this is certain to be required by the research groups as their work develops.

E. STANLEY HALL,
President.

PAPER CONTROL

Owing to the paper shortage caused by the German invasion of Scandinavia, 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.*

To obtain your copy of the JOURNAL *you must therefore either place a definite order with your newsagent or send a subscription order to the Publishers.*



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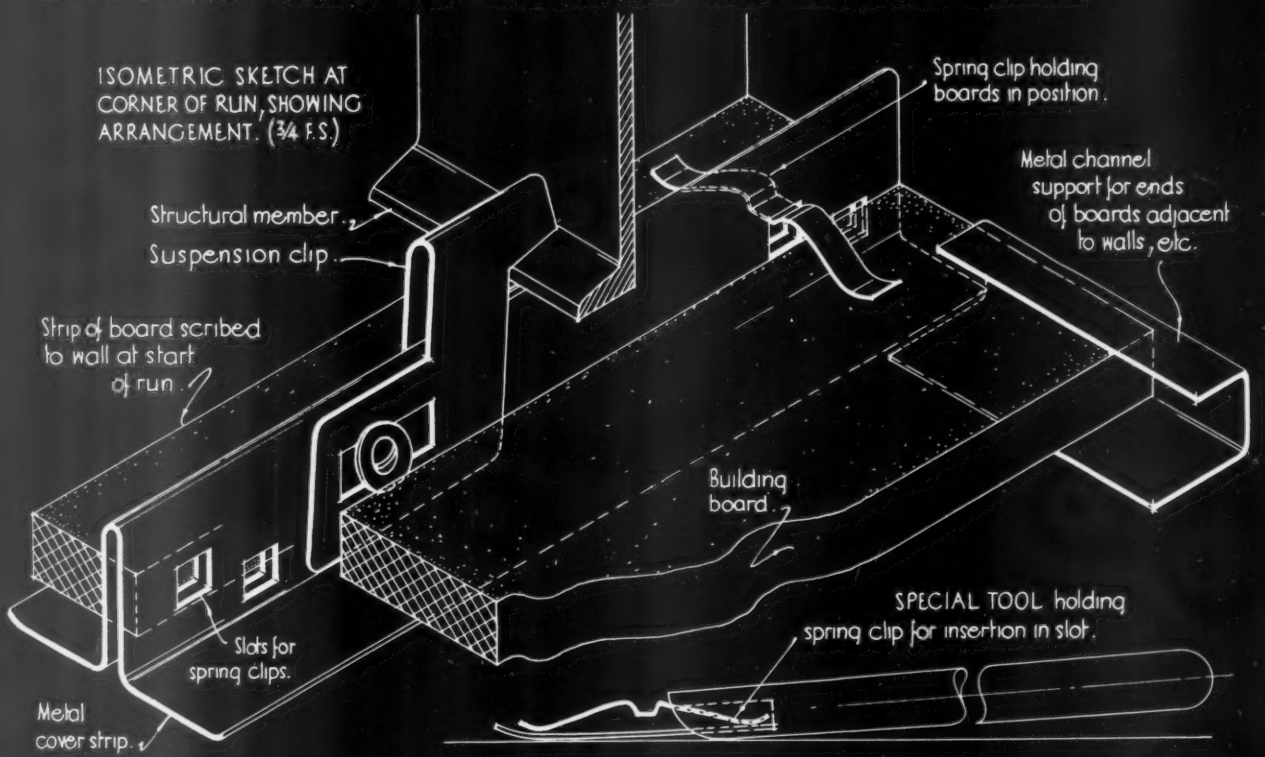
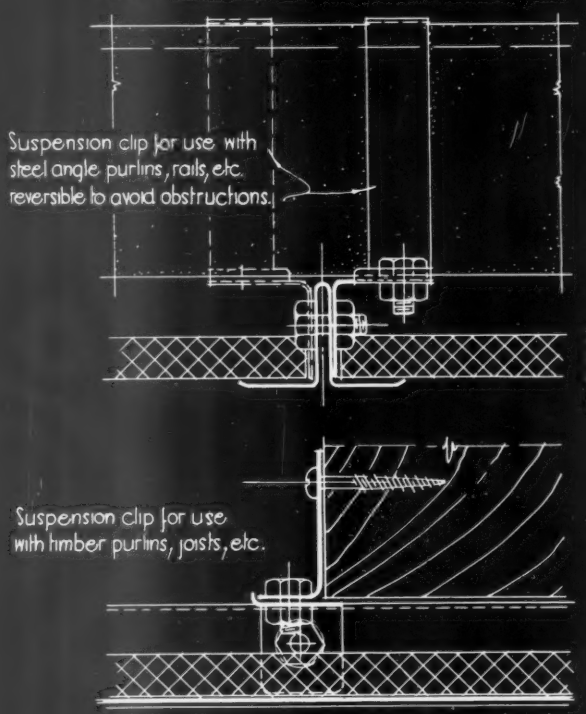
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

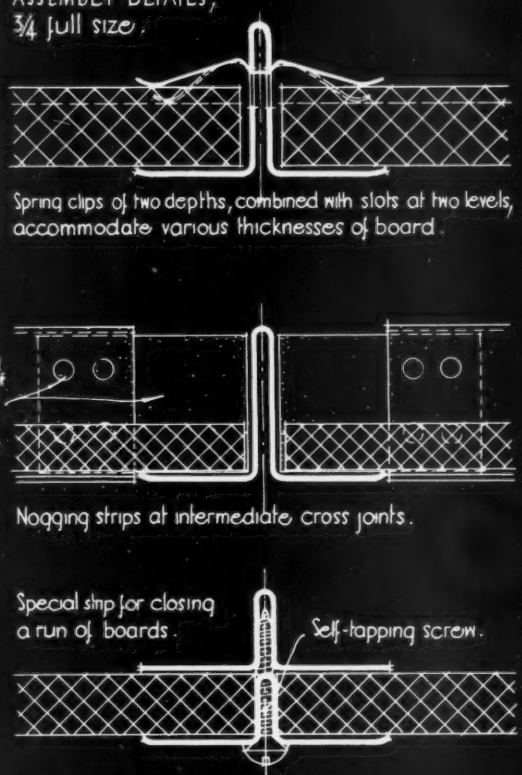
SPRING CLIP FIXING FOR INSULATING AND BUILDING BOARDS :



SUSPENSION CLIPS
are varied to suit structural members, etc.



ASSEMBLY DETAILS, 3/4 full size.



Issued by Specialised Construction, The Tentest Fibre Board Company Ltd.

INFORMATION SHEET : FIXING BUILDING BOARDS : SPRING CLIP METHOD.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

INFORMATION SHEET • 792 • SPRING CLIP WALLBOARD FIXING

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 792 •

SPRING CLIP WALLBOARD FIXING

Product : Spring Clip and Metal Cover Strip for Fixing Building Boards (Patent applied for)

General :

The slotted metal cover strip and spring clips provide support and fixing for any normal thickness of insulating boards, plaster boards, cement asbestos, plywood or similar sheet materials, applied as ceilings or roof and wall linings to new or existing buildings.

Cover Strips :

The cover strip is of T-shape, the web of the T having two sets of holes. One set of holes allows for the bolting of suspension clips, and the other for the insertion (at either of two levels) of the spring clips which hold the boards in position.

All parts are suitably rust-proofed and the strip can be delivered with the face pre-painted to any colour if desired.

The normal width of the cover strip is 2 in., whilst the depth is governed by the span required. The normal depth of 1¼ in. is suitable for unsupported spans up to 8 ft., sections of greater depth being used for larger spans.

Spring Clips :

These pass through slots in the web of the cover strip, and press the boards firmly against the flanges of the strips. The combination of slots at two different levels and clips of two different depths, permits the fixing of any normal thickness of wallboard.

The clips are placed in position by means of a special tool. Each clip is separately pressed into the tongued end of the special insertion tool, and forced through the appropriate slot. This work is performed over the top of the board and, if necessary, beneath the corrugated or other outer covering of roof and walls. The tongue of the tool is readily withdrawn when the clip snaps into place. Each clip holds two edges of wallboard, and once the clip is in position, its shape renders it immovable by vibration, or by temperature or humidity changes.

Suspension Clips :

Several types of clip are available for the attachment of the cover strips to the structural members. All are designed to hold the cover strip tightly pressed against the underside of the structural member to which it is attached, to prevent movement. Three types of suspension clips are illustrated, for fixing to different types of structural members :—

(1) Steel channel or R.S.J. Section Purlins or Rails.

The clip for these members is in the form of a pressed steel saddle fitting over the web of the cover strip and bolted thereto and bearing on the flange of the structural member.

(2) Steel Angle Purlins or Rails.

The clip is of 14-gauge pressed steel as shown, with one part shaped to bolt to the web of the cover strip and the other closely to follow the profile of the angle. The depth of this part is so arranged that when the two parts of the clip are bolted together, the cover strip is held firmly against the bottom edge of the purlin.

(3) Wood Purlins, Joists or Rails.

The clips for wood members are similar to those shown for angle section, adapted as shown and screwed into position.

For suspended ceilings beneath concrete floors, etc., other types of clip, not shown hereon, are available.

Method of Erection :

The cover strips and building boards may be erected at any time after the structural members to which they are to be attached are in position.

Suspension clips of a type to fit the structural members are bolted to the cover strips, which are holed to receive the clips at intervals to suit the spacing of the structural members. The cover strips are then fixed into position to support the long edges of the boards, which are normally used in 2 ft. widths.

At the start of a run, a narrow piece of board is placed on the flange of the cover strip so as to provide a bearing for the spring clip, and this piece of board may be scribed to fit the adjacent wall, roof truss, etc., as may be necessary.

The short edges of the boards, where these are adjacent to walls, etc., are supported by means of light metal channels clipped to the edge of the board and butting up to the side of the flange of the metal cover strip, but not resting thereon.

At intermediate cross joints, the short edges of the boards are supported by cross noggings made from short pieces of the normal cover strip, with projecting tongues welded into the web to provide a bearing on the main longitudinal members.

At the end of a run, if the last row of spring clips cannot be inserted from above, the run of boards must be closed from below. For this purpose a special strip in two parts is used, the upper part being similar in section to the normal metal cover strip, but with the depth of the web reduced by the thickness of the board being fixed, and the lower part also of similar section but with the depth of the web equal to the thickness of the board. The upper part is fixed above the joint between the last two boards, and when these have been swung up into position, the lower part of the strip is screwed over the joint by means of a self-tapping screw passing into the web of the upper part, as illustrated.

The treatment of the last cover strip of a run is similar to that of the first, a narrow piece of board being laid upon the outside flange of the cover strip and fitted to the adjacent wall, etc., as may be necessary.

Note :

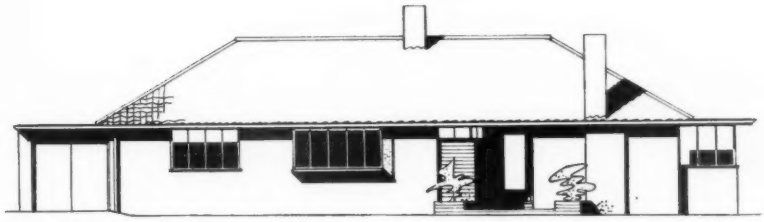
It is preferable that fixing by this specialised method should be carried out by the manufacturers' own workmen. The Company will quote for fixing any type of board to roofs, ceilings or walls upon receiving information regarding the area, spacing and size of purlins, joists or rails, and the height of building to eaves and ridge.

Manufacturers : Specialised Construction, TenTest Fibre Board Co., Ltd.

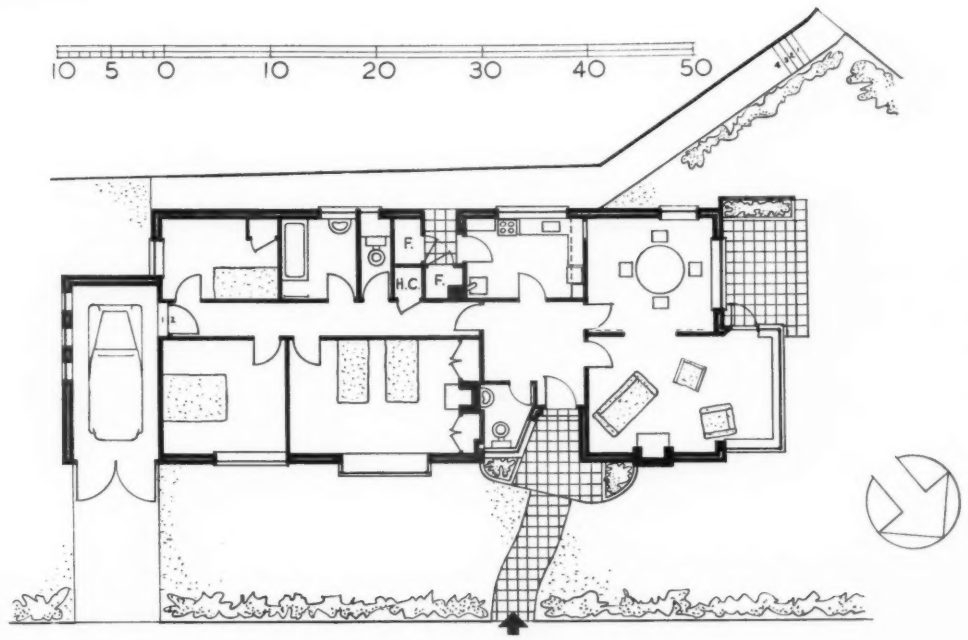
Address : 75 Crescent West, Hadley Wood, Barnet, Herts

Telephone : BARnet 5501 (5 lines)

BUNGALOW AT KINGSTON, SURREY



FRONT ELEVATION



PLAN

DESIGNED BY G. BRIAN HERBERT

GENERAL—The client asked for a three-bedroomed, easily run bungalow, on a narrow site off the Portsmouth Road overlooking the Thames. Entrance was to be off the side road, and an existing entrance on the Portsmouth Road was to be used for kitchen entrance.

SITE—Site was a very awkward and narrow one with a 20-ft. building line along the entrance front (a turning off the Portsmouth Road). It was only because, under the special circumstances, the Kingston Council allowed the building line to be reduced to 15 ft. that it was possible to build the bungalow on the site.

PLAN—The living-rooms face north-west over the Thames, bedrooms being kept on the quieter side of the house. The client's wish to use the Portsmouth Road entrance as a service entrance, determined the placing of the kitchen.

CONSTRUCTION—11-in. cavity brick external walls. 4½-in. brick and 3-in. breeze internal walls. Timbered, felted and pantiled roof. Solid floors. Russet facings generally, with steel-blue flint bricks to entrance porch and flower-boxes. Windows painted cream ; front door, entrance gates and gutter, turquoise. Screen to loggia glazed with champagne rippled glass. Kingston Council insisted on 35 deg. pitch roof.

INTERNAL FINISHES—Oiled mahogany-faced flush doors, satin brass furniture. Distempered plaster walls generally. Built-in furniture in kitchen and bedrooms 1 and 3 was designed by architect—as were the fireplaces.

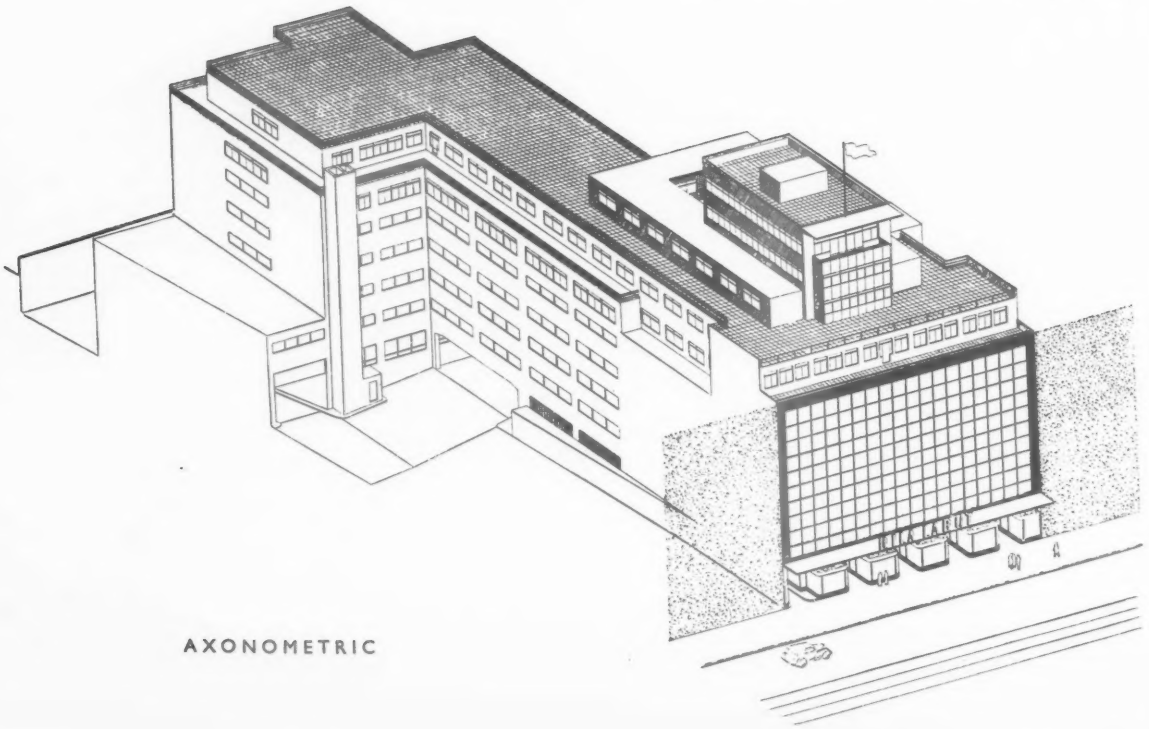
SERVICES—Centrally heated ; indirect cylinder. Coal fire in living-room.

The general contractors were Messrs. H. J. Rainbird. For list of sub-contractors see page xxvi.

DRAPERY

Exterior by night

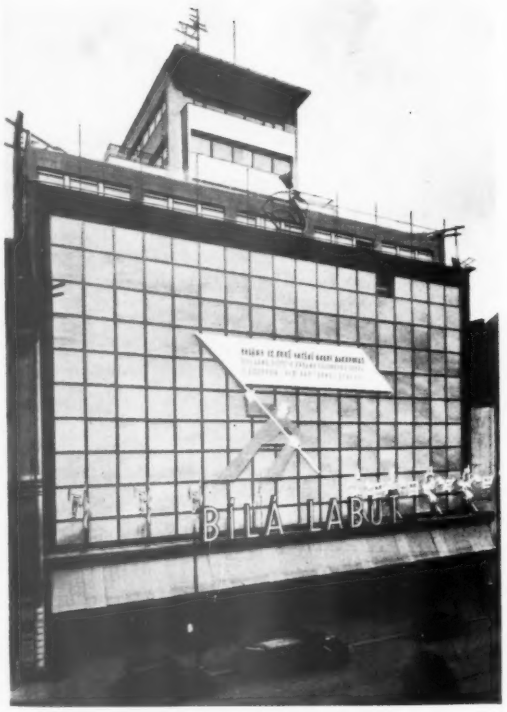
GENERAL AND PLAN—This drapery store in Na Porici, Prague (built before the German occupation), has a relatively small street frontage, but runs back to a considerable depth. It has two floors below street level and ten above, at the highest part. From the ground floor to the third floor there are showrooms, each covering an area of 42,000 sq. ft. From the sixth floor to the ninth there are buying depart-



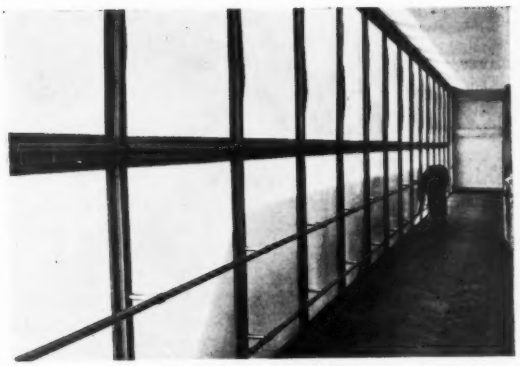
AXONOMETRIC

STORE IN PRAGUE

DESIGNED BY J. KITTRICH AND J. HRUBY



Exterior by day

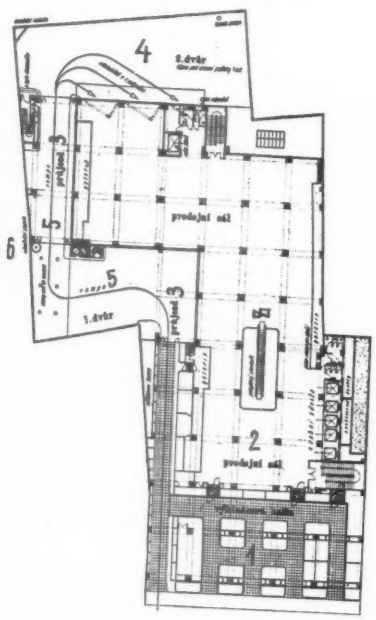


Corridor on third floor

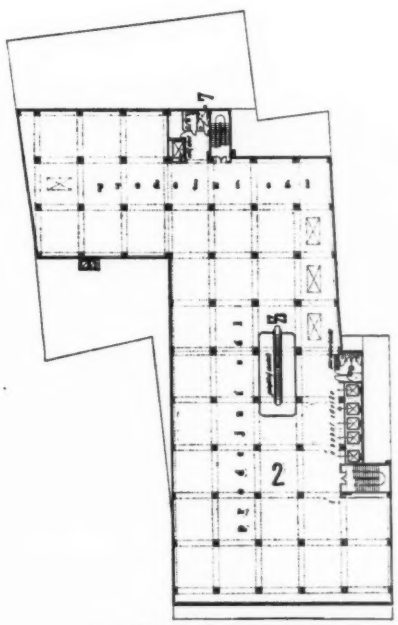
ments, offices and workshops. Below ground are storerooms, wardrobe rooms and goods-receiving depots, machine and boiler rooms, transformer station, cold rooms and sorting rooms. Between the street and the main entrance there is a display hall with a total length of 800 ft. of display window.

CONSTRUCTION AND FINISHES—R.C. frame. Windows are steel casements. Main façade is faced with opaque glass in stainless steel frames.

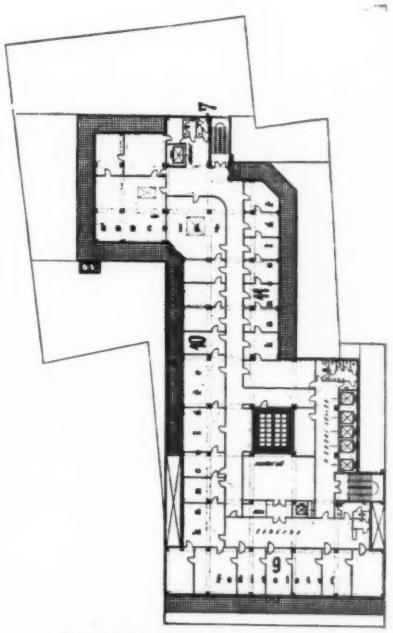
SERVICES—Central heating is embedded panel system, which can be used for cooling in summer by passing cold water through the coils. Ash disposal from the boilers is by vacuum tube to central plant. There is a revolving neon swan, 27 ft. high, on the top of the building.



GROUND FLOOR PLAN



FIRST FLOOR PLAN.



FOURTH FLOOR PLAN

KEY TO PLANS. 1 : Display hall. 2 : Sales. 3 : Corridor. 4 : Court. 5 : Drive in ramp. 6 : Ash silo. 7 : Residue removal. 8 : Escalator. 9: Management. 10: Offices. 11 : Buying rooms.

D

BOOKS

ALUMINIUM

Aluminium in Architectural Work. Published by and obtainable from The Aluminium Union, Ltd.

THIS is a very well-produced guide to the use of aluminium both structurally and decoratively.

The first part of the book describes the origin, physical properties of the metal, and the manufacturing processes used in the industry; and is followed by a list of alloys and the commercial forms in which aluminium is obtainable. This explanatory section ends with a chapter on the specification of aluminium products in building work.

The second part contains photographs showing aluminium in action. The examples range from *Eros* to paper knives, and from Milan to the River Plate, and differ from those in publications of a similar kind in one important particular: they are nearly all very good.

This matter is too often overlooked by manufacturers. Architects are pernickety people. However good a new material may be, their enthusiasm for it is sadly damped if they are shown illustrations of its use in designs which they strongly dislike. By their careful selection of photographs, the producers of *Aluminium in Architectural Work* have made sure that any architect who comes across it will look right through it, with interest. And that is half the battle.

HELP FOR THE TOURING

How to Look at Old Buildings. By Edmund Vale. Batsford. Price 3s. 6d.

ARCHITECTS feel strongly that no one can attain an interest in old buildings that is worth twopence unless they have some understanding of how one building form developed into another under the influence of social changes, constructional advances and the adaptation of foreign methods or fashions. They believe that half the value of all building, or architecture, lies in its recording of this development at every stage—a recording which is the really *historic* part of a historic building. And because they know how difficult it is to sketch this development of building forms in a way which will allow the layman to appreciate, however hazily, any particular old building, they are apt to be impatient with anyone who writes of building and wastes any of a short space on what they regard as trivialities.

How to Look at Old Buildings is, for this reason, likely to make architects impatient. Mr. Vale does deal with a few social influences like the wool trade and markets; he does give a short history of houses and seven pages on materials. But more than half of his small book deals with churches,

Aluminium Roofing: one of the illustrations in "Aluminium in Architectural Work."

including the famous styles, church furniture, memorials, lych-gates, whipping-posts, stocks and all the minor historical whimsies. There are some good photographs.

This does not mean *How to Look at Old Buildings* is a bad book. It is well-informed, chatty and has an antiquarian flavour which one would expect from, say, a kind and alert parish clergyman. And it will no doubt interest many travellers about England. But it does not, in an architect's view, tell *How to Look at Old Buildings.*

ILLUSTRATING BOOKS

Graven Image. By John Farleigh. Macmillan & Co. Price 15s.

THE big moment in Mr. Farleigh's career was when he opened an envelope which contained a cheque for £5 from Mr. Bernard Shaw and a letter which led to his immensely popular wood engravings forming part of Shaw's *Adventures of a Black Girl . . .*

The story of Mr. Farleigh's relations with, and messages to and from, Mr. Shaw—both before and after the *Black Girl*—is given in full. This section suffers from the fact that G.B.S., in wire, letter and on p.c., is now so familiar to everyone that Mr. Farleigh's further samples have inevitably a flavour of parody.

But there is a sound reason for the inclusion in full of trivial occurrences and messages. The author does so to emphasize that a revival of the art of fine illustration depends both upon a close and rare collaboration between author and illustrator and upon the choice of the right medium, as much as the right incidents or subjects. And in this he is very successful.

The bulk of the book consists of very fully and carefully illustrated descriptions of various techniques: wax engraving, wood engraving, scraperboard and so on—both past and present day. And it is in this comparison of techniques that *Graven Image* is at its best. The terse autobiographical and philosophical jottings which surround the studies of technique are not likely to have many admirers. For in most of his opinions on life Mr. Farleigh restates the obvious with a jerkiness of expression which is no doubt a sign of deep feeling but has no other merit.

The book is finely produced; and, as Mr. Farleigh says, it is a credit to Messrs. Macmillan that the outbreak of war when its production was but half complete was not followed by any suggestions of delay or modification.

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NEWS FROM RUSSIA

Extracts from a notice recently issued by the "Russia Today" Press Service:

Rising up on the banks of the Moscow River in the Soviet capital is the greatest monument to Lenin—the Palace of Soviets. Crowned by a stainless steel statue of Lenin, 328 ft. high, the Palace will be 1,365 ft. high, 380½ ft. higher than the Eiffel Tower in Paris and 29½ ft. higher than the Empire State Building in New York. The Palace will have 6,000 rooms of different kinds. Two halls, each with seating accommodation for 1,000, will be set apart for the sessions of the two houses of the Soviet Parliament—the Supreme Council of the U.S.S.R. and the Council of Nationalities. Special equipment will make it possible to convert the floor of the great hall into a circus arena, a swimming pool or an ice rink, as the occasion requires.

The Palace of Soviets will be the largest framed structure in the world. The framework will take 360,000 tons of steel.

From the R.A. Exhibition (No. 1404)

SOME QUESTIONS ANSWERED THIS WEEK:

★ *HOW are we to obtain timber required for an A.R.P. shelter which we are to construct in the Marylebone district?* - - - - Q322

★ *THE problem of building a parish hall is to come up for discussion in the near future. Have you any information as to the relative merits and cost of brick as compared with reinforced concrete?* Q324

★ *COULD you give me names of four firms who would estimate for wood-block paving?* - - Q325

★ *WHERE can be found tables giving the proportion of labour to materials in the various trades forming part of a building contract?* - Q328

THE ARCHITECTS' JOURNAL

INFORMATION CENTRE

THE Information Centre answers any question about architecture, building, or the professions and trades within the building industry. It does so free of charge, and its services are available to any member of the industry.

Questions may be sent in writing to THE ARCHITECTS' JOURNAL, 45 The Avenue, Cheam, Surrey, or telephoned direct to the Information Centre: Regent 6888.

Enquirers do not have to wait for an answer until their question is published in the JOURNAL. Answers are sent direct to enquirers by post or telephone as soon as they have been prepared.

The service is confidential; and in no case is the identity of an enquirer disclosed to a third party. Samples and descriptive literature sent to the Information Centre by manufacturers for the use of a particular enquirer are forwarded whenever the Director of the Centre considers them likely to be of use.

Finally, if an answer does not provide all the information needed, the Centre is always glad to amplify any point on which the enquirer wants fuller explanation.

Any questions about building or architecture may be sent to:

THE ARCHITECTS' JOURNAL
45 THE AVENUE, CHEAM, SURREY.
Telephone: *VIGILANT 0087*

or ring the Architects' Journal Information Centre at

REGENT 6888

Q320 CLERK OF WORKS, CO. DURHAM.—*Many schools in the district where I am employed as clerk of works have SLATED ROOFS with lead gutters between ridges. During the recent snowy weather the gutters became CHOKED WITH SNOW and water found its way into the classrooms below, in many cases with very serious consequences—decoration being completely spoilt. On examination it was found that the lead on the gutters was completely sound and watertight, with a good lap over the tilting fillet, and the roofs were boarded and covered with felt and counter lathed for slates which had a good lap and were completely sound. Snow-boards were found to be giving as much protection to the gutter as could be expected. Many attempts have been made to make these roofs watertight under snowy conditions, unfortunately with no success. Could you give me any suggestions to correct this defect, which is a serious problem to me?*

No doubt the roof construction as detailed provides excellent protection against falling or driving rain. But the same construction is not proof against the infiltration from a reservoir of water, and banked-up melting snow resembles such a reservoir. In such circumstances water will be

sucked up by capillarity and pushed in sideways by sheer pressure or weight of water. To be proof against penetration of this kind, the roof slopes would have to be constructed as the sides of a tank and made continuous with the bottom or, in this case, the gutter. Roof asphalt or built-up bitumen sheeting over roof boarding or concrete could be designed in this way. But what to do with the present roof slopes is difficult. If it is felt that a recurrence of the conditions causing the damage is unlikely, then probably it would be easiest to assume that when next banking up of snow did take place steps would be taken to shovel away any drifts before melting takes place. But if it is felt that something has to be done in a constructional way, then the least that could be done to be in any way useful would be to remove the roof tiling and battens over the area where the boarding was wet after the recent troubles and to lay thin lead, zinc or copper sheet over the present or new boarding and so arrange the joints as to prevent infiltration. As an alternative to sheet metal, bitumen sheeting of damp-proof-course weight or asphalt could be used. The nail holes resulting from a refixing of slating battens may, of course, remain a minor source of water penetration if the same conditions recur. But perhaps this can be risked.

Q321 ARCHITECT, LONDON.—*Some time ago I remember seeing a form of ALUMINIUM EDGING for counter tops which was FIXED SOLELY BY means of A SAW CUT in the thickness of the counter top. What firm supplies this particular section?*

Normally, this section was available from C. P. Moody, Ltd., 33 Finck Street, London, S.E.1, and was imported into this country from Switzerland. At present, however, there are no stocks available in this country; but the marketing firm would be ready to make enquiries concerning a licence to import if a reasonable quantity is required.

Q322 ARCHITECTS, LONDON, W.1. — *How do we obtain the TIMBER REQUIRED FOR an A.R.P. SHELTER job we are to construct in the Marylebone district?*

The Local Timber Control Office is situated at 25 Savile Row, London, W.1, but it is for the contractor or sub-contractor concerned, being the user or so-called consumer, to make the necessary applications and arrangements. The requisite forms, obtainable from the Timber Control office mentioned, have to be filled up in triplicate and posted to the Chief Inspector, Ministry of Home Security, Box 501, London, S.W.1, who will examine and probably certify the application. If sanction to purchase is given, the form, the reverse side of which acts as the Certificate to Purchase when suitably inscribed, is returned to the contractor. The next step is to find a merchant holding stocks of the scantlings and quantity required or who will undertake to find the timber in the stock of another merchant. The Certificate to Purchase when handed to the merchant is his authority to release the timber. The position of the timber merchant, however, is one which will make it increasingly difficult to obtain a firm with stocks of the normal structural timbers. The merchant, once he has liquidated his stocks, has in his possession a handful of Certificates to Purchase. But there is no body to whom he can forward these certificates and thereby obtain stock replenishment. The national reserve of timber in the country is for use only for priority work and emergency work of a nature which might be said to precede ordinary priority work. The merchant's only hope therefore is by some means or other to find some home-grown timber which by reason of size could not be used for pit props or work of this second line Priority class.

Q323 BOROUGH ENGINEER, BARNSLEY. *I shall be obliged if you will assist me by giving me the address of the secretary of the AMATEUR SKITTLE ASSOCIATION. I note that your issue of the 4th April gives a specification for an indoor skittle alley, and as I am at the moment concerned with an outdoor alley I am anxious to obtain any standard rules of the game outdoors.*

The secretary of the Amateur Skittle Association is Mr. Hensley, The Paxton's Head, Knightsbridge, London, S.W.1.

Q324 CHURCH AUTHORITY, BIRMINGHAM. —*The Church Council of which I am a member is faced with the urgent problem of building a PARISH HALL to replace the commodious but out-of-date wooden building now in use. As the matter is to come up for discussion in the near future I am seeking information as to the RELATIVE MERITS and cost OF BRICK as COMPARED WITH REINFORCED CONCRETE. Wartime restrictions, of course, complicate matters very considerably and must have some bearing on the ultimate choice, but it has occurred to me that you may be able to put me in touch with a firm specializing in the erection of durable buildings other than brick or stone. We have not yet reached the stage of inviting tenders and have yet to decide on the materials to be used. It may be that such a building as we desire can be erected quickly and economically by adopting more modern methods and materials than bricks.*

For the projected parish hall no really definite or accurate information could be given except with a very intimate knowledge of the requirements. Only the architect appointed for the work could know all the facts which will influence such a choice or provide the data as to planning, clear spans, relative local costs, etc., on which such a choice will be dependent. These factors influence the choice of materials so fundamentally that it is impossible for anyone ignorant of them to express any useful opinion on the best materials to use.

Q325 BUILDERS, LONDON. *Could you give me names of four firms who would estimate for WOOD-BLOCK PAVING?*

Suggested names are given below.*

Q326 ARCHITECT, LONDON.—*I have a problem on which your help would be appreciated. On old buildings under renovation there are LIME external RENDERINGS, the surface of which is in a crumbly condition although the body of the material is fairly sound. I wish to apply a SURFACE DECORATION, but from inspection of nearby renderings of a similar character it would appear that the ordinary distemper is not satisfactory on the surface provided, considerable flaking of the surface having taken place. Can you suggest any suitable decorative material?*

It would seem that the binding medium of an ordinary distemper is too strong for the poor surface and that a hard skin is formed which comes away from the backing. If this is the case then only a decorative

* *The Acme Flooring and Paving Co. (1904), Ltd. River Road, Barking, Essex. Hollis Bros. & Co., Ltd., Victoria Dock, London, E.16. Horsley, Smith & Co. (Floors), Ltd., Dawley Road, Hayes, Middlesex. Improved Wood Pavement Co., Ltd., Blackfriars House, New Bridge Street, London, E.C.4.*

medium less strongly bound than the ordinary external distemper is possible. An obvious suggestion, therefore, is a tallow-bound limewash, tinted if necessary. A possible alternative to the tallow binding would be a binding of a wax emulsion which is obtainable in a form suitable for incorporation in a limewhite mix from Amoa Chemicals Co., Ltd., 146 Marvels Lane, London, S.E.12.

Q327 PROPERTY OWNERS, LONDON.—*I have a case of EXPOSED STEEL GIRDERS supporting a concrete ceiling in a large underground garage; these girders are at times badly affected by CONDENSATION, which actually drops on to the roofs of the cars. I had intended casing these girders in with matchboarding, but as this will be very costly at the present time, I am wondering whether you can recommend an anti-condensation paint, or material which could be applied direct to this steelwork.*

On the steelwork of ships a cork-filled paint is used to prevent condensation. Paints of this type are available from the firms mentioned below.* The use of this paint does not eliminate or minimize the amount of condensation to any great degree, but the absorptive nature of the paint would make the condensation spread evenly over the surface of the girders so that until very severe conditions exist there is no tendency for the condensation to drop from the painted surface. If, however, it is desired to minimize or eliminate condensation this could be done by treatment with sprayed asbestos. Work of this type is carried out by Messrs. J. W. Roberts, Ltd., Armley, Leeds, 12. This asbestos spray, in addition to reducing the condensation, has some fire-resisting qualities.

Q328 ESTATE AGENTS, LONDON, W.1.—*Can you give us any reference as to where we can find tables giving the PROPORTION OF LABOUR TO MATERIALS IN the VARIOUS TRADES forming part of a building contract?*

From enquiries made it would seem that the most recent work of this nature was given in the course of a lecture on "Approximate Estimates," by Hamilton G. Turner, Esq., F.S.I., at the Building Centre on February 8, 1939. The figures given were as under :—

Trade	*Labour* Per cent.	*Materials and Plant* Per cent.
Excavator	90	10
Concretor	17	83
Drainlayer	33	67
Bricklayer	30	70
Mason	50	50
Slater	15	85
Tiler	20	80
Carpenter	30	70
Joiner	60	40
Smith	23	77
Plumber	25	75
Plasterer	60	40
Painter	50	50
Glazier	15	85
Paperhanger ..	30	70
Gasfitter	25	75

As part of the lecture Mr. Turner went on to give some indication of the percentage cost of the various trades. The following list gives the average for four houses recently erected. It must be noted that the percentage cost will differ in almost all buildings :—

	Per cent.
Excavator, concretor and bricklayer	27·00
Drains	4·35
Mason	2·75
Tiler	4·75
Carpenter, joiner and ironmonger	26·25
Founder and smith	4·00
Plumber, hot water, gas and electric wiring	16·25
Plasterer	9·75
Glazier	2·65
Painter	2·25
	100·00

Q329 ARCHITECT, LONDON. — *An A.R.P. shelter was completed some months ago and the building owner concerned has passed to us a letter received by him from the tenant of the premises concerned to the effect that SEWER GAS is present IN the SHELTER. In the letter it is stated that the tenant has caused tests to be made which confirm the presence of the gas. What steps ought I to take in the matter?*

If the architect is satisfied that sewer gas is present, and if it is possible that the gas emanates from drains the responsibility for which is vested in the building owner, then quite obviously an air-pressure test ought to be carried out on the drains and any deficiencies made good, Failing such a condition, however. the matter is one which should be referred immediately to the local sanitary authorities, since it can be assumed that the presence of the gas in the shelter is due to leakage from or fracture of some nearby sewer or drain.

Q330 STRUCTURAL ENGINEER, IPSWICH.—*I should be glad if you could suggest a reasonably economical method of preventing FLOOR BOARDS from SQUEAKING. These boards are in a rather old house and rest on wood joists. Screwing up of the boards has been tried, but has proved unavailing.*

Where the squeak could be traced to a length of board rubbing on another or to flooring nails loose in joists, a cure has been brought about by working graphite, French chalk or talc between the boards or through small holes bored for the purpose. No other remedial treatment can be discovered which does not involve taking up, or even renewing, the boards involved.

Q331 ARCHITECT, SURREY. — *It is desired to fit GAS CURTAINS to a large number of shelters and recommendations for this purpose would be appreciated. At the moment each shelter entrance is provided with battens nailed to the wall sloping slightly vertically, and it was proposed to fix a felt curtain, stiffened at intervals by battens which could be let down along these wall battens or rolled up at the head of the entrance as desired. Is this satisfactory or are there better alternatives?*

The construction described is that recommended in the A.R.P. Handbook No. 6, and is illustrated on page 44 of that publication. From enquiries to firms making up these gas curtains, it would seem to be the form generally adopted. The material, however, need not now be grease-treated felt; forms of rubber cloth and linseed oil dressed canvas similar to the yellow oilskin material of anti-gas clothing can be used for the curtain fabric. Of course, it would be possible to design an alternative form of curtain fitting and have it made by a firm such as

* *Thos. Parsons and Sons, Ltd., 315 Oxford Street, London, W.1—under the name Corktex. Walpamur, Ltd., Walpamur House, Rathbone Place, London, W.1.*

The Information Centre must make clear that, while it gives general opinions on problems involving legal matters, such advice must in no case be taken as a legal opinion on the facts of a particular case. It must also be made clear that the Centre, in helping to solve inquirers' problems, can accept no responsibility for any action taken as a result of its advice.

Tidmarsh and Sons, Transenna Works, Laycock Street, London, N.1, or other firms of blind manufacturers with experience of gas-curtain work.

REFERENCE BACK

[*This section deals with previous questions and answers.*]

Q262. *April* 18, 1940.

The Manchester Slate Company, Ltd., Fairfield Street, London Road, Manchester 1, have informed us that they, as well as the firm given in the previous answer, have devised a system of timberless slated roof construction—the "Slategrip" system—in which mild steel rods are used for rafters and slating battens and the individual slates are held in position by clips.

A. R. P.

MANCHESTER'S NEW SHELTERS

Manchester Corporation Housing Department, under the direction of Mr. John Hughes, A.R.I.B.A., is building a series of underground shelters which will ultimately serve as basements to flats to be built at a later date.

Prior to the outbreak of war, plans for an extensive programme of flat construction were prepared, utilizing eight re-development areas in the city. These were shelved and a new scheme of shelter construction devised.

The shelters, of which there will be 376, will each hold 35 people in accordance with the requirements of the Home Office code, and will be constructed entirely of reinforced concrete. Side walls, 12 in. thick, have been designed to include columns and certain foundation work in anticipation of the future superstructure. The roof slabs, 8 in. thick, are designed to take a load of 240 lb. per sq. ft., in addition to the normal live and dead loads.

Two shelters are provided within the limits of the future standard flat unit, and access to them is by means of a reinforced concrete stair approached at ground level, which on completion of the flat above will form an extension of the staircase to the flats.

Wherever possible, the shelters run the whole length of the future blocks and will measure 9 ft. 6 in. in width, with a clear headroom height of 6 ft. 9 in. The staircases will be linked together to provide an alternative means of escape.

Provision is made for 5 ft. by 3 ft. 6 in. emergency openings in the division walls, these being filled with brick panels to allow of easy removal in the case of an emergency.

Each shelter is ventilated by means of a 9 in. by 9 in. flue formed in the roof slab. The flue will ultimately be carried up above the roof level of the flat block. Four grilled ventilation openings, each 1 ft. 6 in. long by 3 in. high, will also be formed in the external side of the shelter wall.

Chemical closets will be arranged by utilizing the future meter room adjacent to the access stair and provision has been made for a gully to be fixed in the shelters for drainage if necessary.

One of Manchester's basement shelters in construction on land made available by pre-war demolition of slum property. See note on this page.

From the R.A. Exhibition: Church at Bursland, Hertfordshire. By Courtenay M. Crickmer (No. 1522).

SPECIFICATIONS

METAL ARC WELDING

The revised British Standard Specification for Metal Arc Welding of Steel Structures (B.S. No. 538) has recently been issued.

It had been known that the main object of preparing this revision was to bring the standard into line with the conditions issued by the London County Council under which welding would be permitted in London.

There is accordingly very much which is common in both documents, but the British Standard is somewhat more comprehensive in that it deals in greater detail with the important aspects of workmanship and testing.

Copies of the Standard may be had from the British Standards Institution, 28 Victoria Street, London, S.W.1, price 2s. each (2s. 2d. post free).

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CHEMICAL CLOSETS

Since the issue in September, 1939, of B.S./A.R.P./5 for Chemical Closets for Use in Shelter Accommodation, there has been a demand for a detailed specification for a more simple and less expensive type of closet.

This is because it is hoped that shelters will only be occupied infrequently for a comparatively short period and consequently the sanitary accommodation in shelters need only be of an inexpensive type approximating to a bucket latrine, if provision is made for emptying the container promptly after each use.

Several Government Departments collaborated in the design, and a model was prepared in the workshops of the Building Research Station. The Specification, entitled B.S./A.R.P/43, A Closet for Use in Air-raid Shelters, includes working drawings, and a model closet may be inspected at the Offices of the Institution.

Copies of this Specification may be had from the British Standards Institution, 28 Victoria Street, London, S.W.1. Price 3d. post free.

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PRIZES

The Annual Competition for the Prizes and Studentships presented by the Royal Incorporation of Architects in Scotland have been awarded as follows:

Rowand Anderson Studentship (£100 and Silver Medal): No award. Prize of £20: Miss Jean Payton Reid, Edinburgh College of Art. Honourable Mentions: James Conner, Aberdeen School of Architecture; W. R. Woodcock, Dundee School of Architecture; A. L. C. Lemon, Aberdeen School of Architecture; and John H. Donald, Aberdeen School of Architecture.

Rutland Prize (£50). Robert J. Naismith,

Edinburgh College of Art. Honourable Mention: Francis Murray, Edinburgh College of Art; T. F. Haughey.

Incorporation Prize (1st Prize £15), A. A. Taylor (Glasgow School of Architecture); (2nd Prize £5), Arthur F. S. Wright, Dundee School of Architecture. Honourable Mention: Frank Allan, Edinburgh College of Art; S. Duncan, Dundee School of Architecture; and Alex. Farquhar, Glasgow School of Architecture.

Lorimer Memorial Prize (1st Prize £10). W. R. Woodcock, Dundee School of Architecture.

The Walpamur Prize for Colour Decoration offered annually to the Welsh School of Architecture, Cardiff Technical College, has just been awarded for the current session, Mr. T. D. Gedrych being placed first and Mr. W. Hughes second. The prize is of the value of £15, and this has been divided, £10 being awarded to the winner and £5 to the second.

The subject of the competition was a colour scheme for the whole or part of a building being designed by the students in the latter part of their final year. On the present occasion the subject selected was a dance hall foyer in a seaside pavilion.

The jury for the competition consisted of Mr. D. Ashford, of the Walpamur Company; Mr. Lewis John, M.A., B.ARCH., A.R.I.B.A., and Mr. W. S. Purchon, M.A., F.R.I.B.A., Senior Lecturer and Head of the Welsh School of Architecture respectively.

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BLAST TESTS OF WIRED GLASS

New tests at St. Helens, Lancashire, of the behaviour of wired glass under violent blast pressure were described and illustrated by a film by Mr. G. L. Pilkington, Chairman of Pilkington Brothers, at the Building Centre, New Bond Street, W.1, on Tuesday, May 7.

Various types of wired glass were undamaged by the explosion of a 2-lb. charge of blasting powder at distances of 50, 40 and 30 ft., this being roughly equivalent to the bursting of a 500-lb. bomb at 250, 200 and 150 yds. respectively.

As a result of further explosions at 10 and 20 ft. from the test windows—equivalent to a 500-lb. bomb bursting at 100 yds. and 50 yds. respectively—the wired glasses were cracked but did not splinter.

Wired glass was among types mentioned by the Home Office A.R.P. Department as having high resistance to blast and was also approved by the L.C.C. as a fire-resisting material.

The use of glass bricks in narrow apertures, making windows or openings in air-raid shelters both blast-proof and gas-proof without excluding daylight, was demonstrated by slides.

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MINISTRY OF HEALTH

Loans sanctioned during the quarter ended March 31, 1940, to local authorities in England and Wales include:—

	£
Housing	1,003,007
Municipal hospital services (including clinics, sanatoria and mental hospitals)	352,992
Swimming pools, playing fields, recreation grounds, open spaces, etc.	99,786
Education services (including libraries and museums)	2,097,636
Roads and bridges	604,697

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ROYAL SOCIETY OF BRITISH SCULPTORS

The Royal Society of British Sculptors has this year decided to give two annual best work medals. These have been awarded to Mr. Alfred J. Oakley, F.R.B.S., for "The Gazelle" in carved wood, and Mr. A. Bertram Pegram, F.R.B.S., for his work in marble, "Serenitas in Turba," both of which were exhibited in the United Arts Winter Exhibition at the Royal Academy.

BUILDINGS ILLUSTRATED

HOLY TRINITY CHURCH, MILLHOUSES, SHEFFIELD (pages 525-528). Architect: J. Amory Teather, F.R.I.B.A. General contractors, D. O'Neill and Son. Sub-contractors and suppliers included: G. M. Callender & Co., Ltd., Ledkore dampcourse; John Hadfield and Sons, asphalt; Joseph Turner, Ltd., stone; Thomas W. Ward, Ltd., structural steel; William Proctor and Sons, Ltd., tiles; F. McNeill & Co., Ltd., Lion reinforced bitumen and roofing felt; Robertson and Russell, glass; T. K. Yeates & Co., woodblock flooring; John Grundy, Ltd., central heating and boilers; Keep and Roebuck, electric wiring and electric light fittings; P. M. Walker & Co., concealed ventilators; J. B. Corrie and Sons, Ltd., plumbing; John Norton and Son, sanitary fittings; Neville Watts & Co., door furniture; Mellowes & Co., Ltd., casements; Hudson and Dore, plaster; C. H. Gillam and Sons, Ltd., joinery and church fittings; Johnson and Appleyards, textiles; Smith & Co., furniture (chairs); and Mr. Bernard Stocks, shrubs and trees.

BUNGALOW, KINGSTON-ON-THAMES (page 533). Architect: G. Brian Herbert, A.R.I.B.A. General contractors, Messrs. H. J. Rainbird. Sub-contractors and suppliers included: Field and Palmer, Ltd., asphalt; Gray Bros. Ltd., concrete blocks; Flettons, Ltd., flettons and russet facings, both supplied by Gray Bros., Ltd.; Uxbridge Flint Brick Co., blue-grey flint bricks to entrance porch; T. C. Jones & Co., Ltd., girders and reinforcing rods; Langley's (London), Ltd., tiles (fixed by Gray Bros., who also fixed untearable felt); B. Murray, glass; H. Westwood, central heating; National Radiator Co., Ideal boiler fixed by Westwood); A. R. Jeffery, electric wiring; H. Westwood, plumbing; A. E. Crisp & Co., Ltd., sanitary fittings; Dryad Metal Co., door furniture; Crittall Manufacturing Co., Ltd., casements; W. T. Booth (Shopfitters), kitchen cabinets; Merchant Trading Co., Ltd., doors; Fred Hodge, Ltd., wall tiling.