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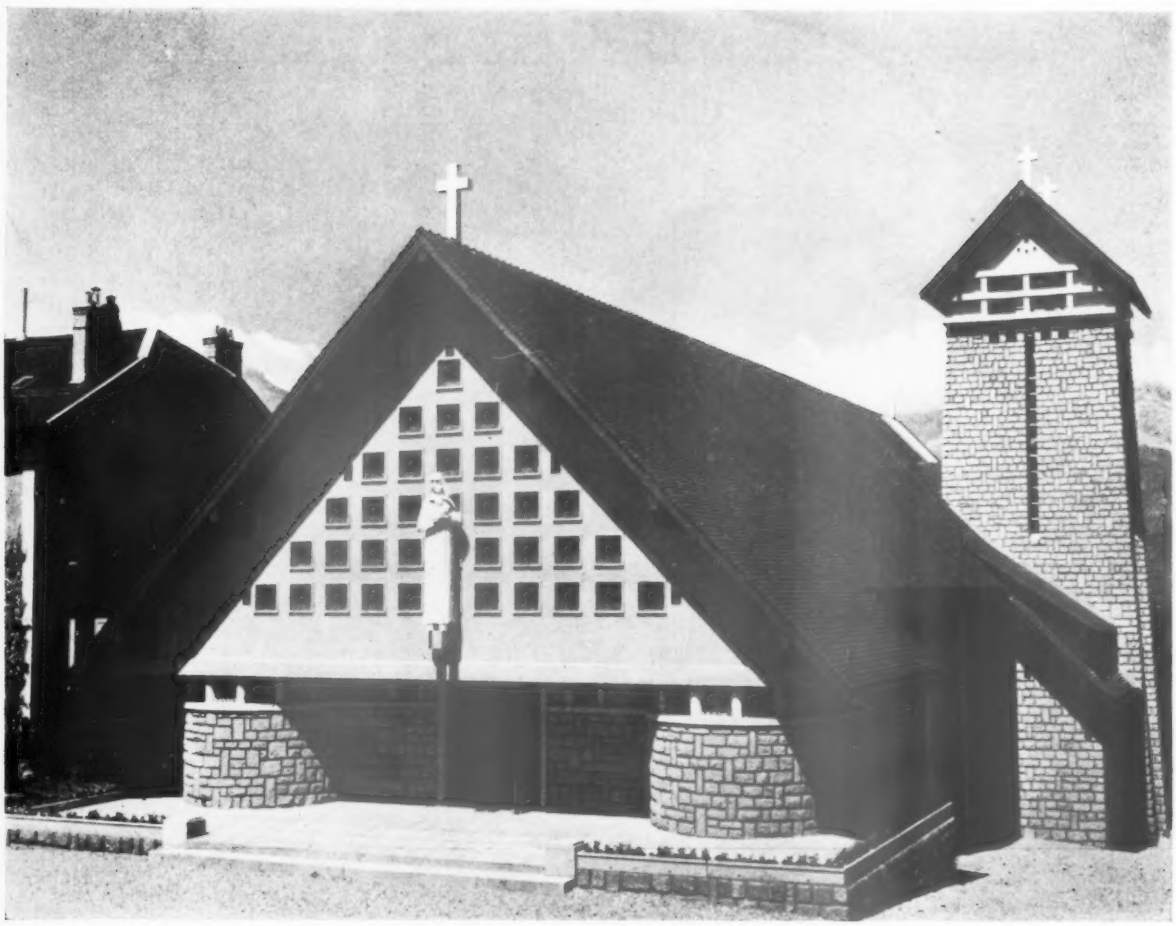
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, FEBRUARY 29, 1940. NUMBER 2354 : VOLUME 91

PRINCIPAL CONTENTS

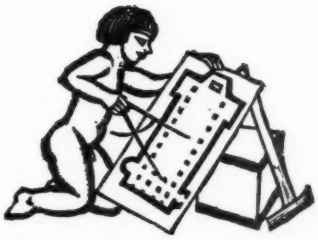
BRUN

The swimming bath at Brun, showing the chute in the foreground and the club buildings in the background. Architect, Bohuslav Fuchs.



CHURCH IN FRANCE

The new church at St. Gervais, Haute Savoie, France. The plinth and tower are of granite blocks ; the upper wall of the gable end and the statue are of hammered concrete ; and the roof is covered with artificial tiles.



BUILDING AND THE CHILDREN

IN the last issue of the JOURNAL the Government's new plans for schoolchildren were described. In brief, the scheme includes the reopening of urban schools, the persuasion of parents to keep in the country the children who are now evacuated, and preparations for a second evacuation by areas as local danger may dictate.

The JOURNAL also listed last week some of the obvious faults of this scheme : the re-closing of urban schools when air raids begin ; the absence of knowledge of how many children would take part in the second evacuation, of how many, once evacuated, would remain evacuated ; and the lack of special protection for children whose parents keep them in towns.

These faults vitally affect the potential efficiency of the new scheme : but they do not alter, in form, the building programme which will be necessary if the scheme is ever to provide reasonable conditions for education.

Let us consider each part of the scheme in relation to building. First, there is the reopening of urban schools. It is probable that a day-time raid, perhaps a series of raids, will have taken place before the second evacuation is decided on in any locality. Shelters in all schools which will allow staff and pupils to remain calm, which will give parents confidence, are therefore a first requirement. The temporary plans, by which residents near a school are now being asked to take in two or three children in the event of a raid, has possibilities of chaos and terror among children and parents which should be ended as quickly as builders can build.

The second part of the scheme concerns the 400,000 urban children who are still evacuated and, in most cases, attending rural schools on the shift system. If any considerable number of these children remain in the country when urban schools reopen—and the Government intends that they should—better arrangements than those now in force must be made.

A Ministry Circular about families which are billeting children says that "as a general objective the householder should be relieved . . . (of all care for the children) between breakfast and tea." This statement, in conjunction with the notorious shortcomings of rural schools, makes the building of a certain number of new schools desirable from every point of view. If built as village colleges, these new buildings could provide school accommodation, medical facilities, and mid-day meals for evacuated children, relieve pressure on rural schools, remain for use in peace, and, most especially, become residential camps for some of the children involved in the second evacuation. The provision of this new accommodation for all the 400,000 children would no doubt be inacceptable to the Government. But this would not be necessary. New camps for the worst-placed third of them, and the adaptation of existing houses for another third, would provide reasonable conditions for all children now evacuated and go a long way towards smoothing the difficulties of the future local evacuations.

These future local evacuations—the third part of the Government scheme—cannot be prepared for in detail. Half of the evacuation areas may be bombed simultaneously, or only two of them. All parents may consent to their children being evacuated or only half of them. Anything from 10,000 to a million children may be affected within a few days or a few weeks. In these circumstances local authorities can only try to make urban schools as secure and self-sufficient as possible during raids and build up in reception areas a "pool" of billets, each within walking distance of a building which can provide schooling, superintendence, mid-day meals and medical supervision.

The provision, by building or adaptation, of 500 new school centres would enable children now evacuated to be well educated. It would also enable schemes for the second evacuation to remedy the gravest deficiencies of the first. Without such new centres no improvement worthy of the name is possible.

The Architects' Journal
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NOTES & TOPICS

OXFORD

THE Royal Commission on Historical Monuments has now published its report on the City of Oxford. It is an accurate survey of everything in the city from earthworks to buildings, from plate to panelling, which, in the opinion of the distinguished Commissioners, is worthy of mention, and is prefaced by a special plea for the permanent preservation of the best of them—a list which includes five university buildings, six churches, twenty houses, and parts of twenty-one colleges.

*

Magnificently valuable as this report is, it is not, as Professor Reilly has pointed out, enough. For one thing, the Commission is only empowered to notice monuments existing before 1714. This eliminates among others Gibbs' Radcliffe Camera, the Radcliffe Observatory and the North Quad of All Souls by Hawksmoor—Queen's College squeezing in by the skin of its teeth.

*

Secondly, the report calls for the preservation of isolated buildings only. The character of a city lies more in the vistas of streets and terraces, in the groups of squares and crescents, than in individual monuments, however excellent. A perfect Queen Anne house preserved and isolated in a street of towering flats looks merely ridiculous.

*

What then is to be done? Professor Reilly suggests drawing rings, with the help of an enlightened Commission —say, Astragal's Selected Jury?—within whose limits nothing could be built to destroy the existing harmony. As places suitable for ringing, he names Oxford, Cambridge, Bath and Brighton. Ramsgate, Cheltenham, Weymouth and Marlborough are other towns which spring to the mind—and such villages as Laxton and Stockbridge. The list could be extended almost indefinitely. There is the danger, of course, that such areas might become lifeless museums, like Carcassonne or Mont St. Michel, the streets littered with Kodak spools and every cottage a teashop. But West Wycombe has avoided this fate and proved a success, so why not others?

*

In Oxford the danger is particularly urgent. The University, like the Church of England, seems to be a singularly incapable guardian of its inheritance—Inter-collegiate feuds and the well-known business acumen of college bursars effectively prevent any concerted effort on behalf of amenities, and the post-war years have seen a melancholy record of lost opportunities and furtive destruction.

*

The chaotic layout of the Parks, the Tudor rebuilding of Carfax, the shoddy railway station, the horrible mess that is Gloucester Green, are existing eyesores. Mutilation will soon be the fate of Beaumont Street, Ship Street and Merton Street. The ordered façade of the Clarendon Hotel is to make way for a new 6d. store, and the pinnacled Randolph remains untouched. Voluntary organizations like the Georgian Group and the Oxford Preservation Society do their best. A few things are rescued by means of private enterprise or elaborate intrigue, but it is a losing battle. Unless some such plan as that proposed by Professor Reilly is adopted, and although the colleges may survive as individual units, the essential Oxford is doomed to be destroyed.

THE "NEWS CHRONICLE" AND MR. VOYSEY

Of all British newspapers, the *News Chronicle* has deserved best of architects and architecture for many years. And because it is a popular newspaper, its consistent encouragement of good architecture—which is supposed to be of no public interest—has earned double respect from all of us.

*

So it must have been a particularly nasty bump for architects to see the *News Chronicle's* treatment of an interview with Mr. C. F. A. Voysey, published on February 21.

*

On his being awarded the Royal Gold Medal, Mr. Voysey's work and influence and his ties with Webb, Morris and the Art Workers' Guild could have made a first-rate feature in the *News Chronicle's* best tradition. And that John Betjeman (who writes in the JOURNAL this week) has made a special study of Mr. Voysey's work is only the first and most obvious proof that there is no lack of good writers and critics who know his work.

*

Instead the *News Chronicle* chose an easy sensationalism. But the B.B.C. went one better. On the day that the news went forth that Mr. Voysey was to be awarded the Gold Medal, it explained the award on the grounds that the recipient was an "expert on interior decoration."

EXHIBITIONS

There are two exhibitions now on in London which are very well worth a visit. The first is at the Leicester Galleries, where Mr. Anthony Gross is showing a collection of watercolours and drawings. His subjects are principally architectural, and deal lovingly with the suburbs, the blood-red brickwork and fretted gables of Clapham and Kilburn, and the peeling stucco and flyblown windows of Notting Dale and Pimlico. They constitute a witty and

delightful record—just, I imagine, the sort of things Mr. Betjeman would do if he could draw as well as he can write.

*

The other exhibition is at the Picture Hire Gallery, where there is to be seen a collection of small prints, plain 1s., coloured 1s. 6d., by such artists as John Piper, Topolski, Rowland Hilder and Kenneth Rowntree. The subjects are mostly connected with the war—barrage balloons being particular favourites—and few of our contemporary activities escape comment.

*

A number of prints have been chosen for re-sale by a big chain store. If this is true it is an excellent bit of news. Anyway, there must be only about three hundred and something shopping days left till next Christmas, or if that's too far ahead to think about, these prints are just the sort of thing to pin over your truckle bed at the ambulance station.

WONDERS OF SCIENCE

I received this letter last Saturday from an architect :

May I draw your attention to an answer in the JOURNAL's Information Centre on February 22 which gave the names of two firms which manufacture Burglar Alarms which dial 999? What I want to know is what the alarm says when the girl at the other end answers the 999. Last night I was haunted by this dialogue :

Exchange : 999 Service here !
B.A. : Ting a ling . . .
Exchange : Fire, Police, or Ambulance?
B.A. : Ting a ling . . .
Exchange : Who are you?
B.A. (exasperated) : What do you think?—I'm a Burglar Alarm !

Can you help me banish the thought of this crosstalk?

*

Having consulted an expert, I can. The 999 in London goes straight through to Scotland Yard over special lines. The apparatus whose manufacturer I consulted works in this way. When burglars set it in motion, it dials 999 and then, by a gramophone attachment, it quietly transmits : " Police ! Police ! Burglars have entered the premises of John Brown, Silversmiths, One - Four - Two, Long Acre, Double-U-See-Two."

*

It goes on saying it for ten minutes, if necessary. Scotland Yard then direct a patrol car by wireless and in one recent case a car reached the shop concerned in 40 seconds. Since two badly-wanted burglars have already been caught by this device, Scotland Yard consider it a good idea.

*

A thermostatic attachment can set a fire call in motion in the same way. It should be added that a siren in the local exchange directs attention to a 999 call passing through ; and the time and the telephone number from which the call is sent are noted. Public call-box numbers being specially grouped and police cars always on patrol, one familiar practical joke is now tending to die out.

DOWNING STREET . . .

I have been told by a former resident that Nos. 10 and 11 Downing Street suffer all the ills of weak foundations quite as badly as undistinguished Bloomsbury.

*

In No. 11 every window and reveal has moved, and a triangular orifice under each door has on several occasions scattered a draft of the Budget. The floors deserve special mention. They slope in alarming and irregular ways and, in the larger rooms, are of dubious strength.

*

So much so, that before the installation of a new floor a year or two ago, the large drawing room at No. 11 had to be jacked up on festive nights to prevent a diplomatic incident of most regrettable magnitude. On these occasions the morning-room below took on the appearance of a well-executed strutted basement.

*

Of the elegant circle to whom this story was told a majority of 5 to 2 voted the Prime Minister a huge, brand new house with lifts and reception rooms consistent with Britain's supposed wealth. Only a naval officer, and Astragal, stood like rocks for keeping Mr. Chamberlain and Sir John Simon right where they are, and letting the foreigners lump it.

BIRTH OF VENUS IN CHICAGO

Prince Ascanio Colonna, Italian Ambassador to the U.S., has arranged for Italy's art treasures, until recently exhibited at the San Francisco Golden Gate International Exposition, to be housed in the Chicago Art Institute " until World War II blows over."

*

Among the treasures are a Michelangelo bas-relief " Madonna and Child," Botticelli's " The Birth of Venus," and another Madonna, by Raphael. Asked why they weren't sent to New York, Prince Colonna is reported to have said that New York is " too near the sea."

HOUSE WITHOUT FLOORS AS MENTAL HOME

Woodchester Park, Stroud, a £20,000 pseudo-Gothic mansion, which has stood without floors and doors for nearly 100 years, is to be reconditioned and opened as a mental home.

*

The house was planned by a Mr. William Leigh to be a replica of a medieval house, complete with chapel and cheeseroom, bakehouse and brewery. He died, however, before it was completed, and the building was abandoned, its windows still unglazed, its staircase without a balustrade and its hall open to the wind and weather. Gothic architecture has always had a close connection with lunacy, and Woodchester Hall will only add one more name to the many asylums already built in this unsuitable style, a style which must really be an added burden upon the minds of the unhappy occupants.

*

It is curious to note, however, that in this house the architect has forgotten not the stairs, but the floors.

ASTRAGAL

The last article in the series by Godfrey Samuel and Eugenio Faludi, called " Temporary and Semi-Permanent Building Construction," will be published on March 7.

NEWS

General

A.B.S.

Mr. H. S. Goodhart-Rendel has been elected Honorary Treasurer of the Architects' Benevolent Society in succession to the late Mr. Maurice E. Webb.

B.S.I.

A B.S. specification for light-locks for shop entrances was issued last September. This specification has now been revised and considerably extended to cover light-locks for entrances to all kinds of buildings, e.g. shops, blocks of flats, factories, garages, etc. Fourteen diagrams are included, showing the general principles of light-locks and examples of typical light-locks used for a variety of types of buildings. These examples deal not only with light-locks for pedestrians, but also for lorries, vans, private cars and hand-barrows. The specification is therefore of direct interest to owners and occupiers of almost all types of buildings.

Copies of the specification can be obtained from the British Standards Institution, 28 Victoria Street, London, S.W.1, price 6d. (8d. post free).

PARTNERSHIP

Partnership hitherto carried on by Messrs. H. D. Ward and K. F. Wray has been dissolved by mutual consent; practice will be carried on by Mr. Ward at same address (8 Bank Buildings, Hastings).

ANNOUNCEMENTS

On and after March 4, 1940, London Office of the British Reinforced Concrete Engineering Co., Ltd., will be at the old address, viz.: King's Buildings, Smith Square, London, S.W.1. (Tel. Nos. Victoria 7951–6.)

The new address of Mr. R. Rosner is 5 Stanley Avenue, Wembley, Middlesex.

Messrs. Samuel and Harding, AA.R.I.B.A., are removing their office from 6 Cavendish Square, W.1, on March 25. After that date all communications should be made by post to 36 Park Village East, N.W.1, where they will receive immediate personal attention.

DIARY

Friday, March 1. Institution of Structural Engineers. Annual Dinner. At the Dorchester Hotel, Park Lane, W.1. 7.30 p.m.

Tuesday, March 5. Institution of Civil Engineers. "The Construction of Deep-Water Quays." By A. C. Gardner. 5.30 p.m.

Thursday, March 7. Institution of Electrical Engineers. "Oil-less Metal-clad Switchgear for Medium-Voltage A.C. Circuits up to 660 Volts, Three-phase." By Mr. H. E. Cox and Mr. L. Drucquer. 6 p.m.

Friday, March 15. Electrical Development Association. Annual Luncheon. At the Savoy Hotel, W.C. 1 p.m.

R.I.B.A.

At a recent Council Meeting of the Institute, the following members were elected:

As Hon. Corresponding Member (1): Bergstrom, E. (Washington, D.C.).

As Fellows (7): Parnacott, H. W. (London); and Gray, A. S. (London). (Overseas)—Forbes, H. T. (Perth, Western Australia); Mackey, N. C. (Sydney, Australia); Parkes, S. T. (Melbourne, Australia); Sharma, P. L. (Roorkee, U.P., India); and Scott, T. (Lagos, Nigeria).

As Associates (34): Bond, Miss Lucy R. (Hereford); Bowyer, R. (Northwich, Cheshire); Burke, M. D. (Dublin); Cannon, J. C. (Morley, Yorks); Cochrane, J. R. G. (Sutton Coldfield); Dant, N. B. (London); Forrest, W. E. (London); Gillett, H. G. (London); Gleave, J. (Walkden); Gummer, C. W. (Sidcup, Kent); Hilton, C. (Oldham, Lancs); Jones, A. M. (Cardiff); Jones, C. A. (Southport, Lancs); Knight, E. H. (Dewsbury); Lowe, C. W. (Addlestone, Surrey); Matthews, S. (London); Rothwell, R. (Oldham); Taute, M. (Hythe, Kent); Thomson, R. B. (Sheffield); Thorneley, D. G. (Hyde, Cheshire); Treatt, Miss J. B. (Cardiff); Turner, W. (Sheffield); Unwin, D. A. (London); White, F. (Leeds); Wilkinson, E. B. (Leeds); and Wragg, R. B. (Sheffield). (Overseas)—Brown, Mrs. E. G. (Cape, South Africa); Cleveland, P. L. (Toronto, Canada); Gehlote, R. L. (Jaipur, India); Hammond, H. C. (Vancouver, B.C.); Kantorowich, R. (Johannesburg); Outred, M. J. (Wellington, New Zealand); Robertson, A. G. (Melbourne, Australia); and Wilson, A. F. (Johannesburg).

As Licentiates (11): Bungey, C. W. (Cosham, Hants); Chapman, W. D. (Macclesfield); Cowland, L. I. (Stanmore, Middlesex); Daniel, R. C. B. A. (London); Eaton, F. L. (Ashton-under-Lyne); Farmer, S. A. (Dorchester); Lauchlan, J. A. (Orpington, Kent); Millns, A. G. (Romford, Essex); Saul, J. (Workington); Trigg, G. J. (Fareham, Hants); and Wright, S. (Wrexham, Denbighshire).

OBITUARY

J. C. PRESTWICH

The death took place, on Saturday last, of Mr. James Caldwell Prestwich, of the firm of J. C. Prestwich and Sons, of Leigh, Lancs. The firm has been responsible for a large number of municipal buildings throughout the country.

Mr. Prestwich was elected a Licentiate of the R.I.B.A. in 1911, and retired in 1939. He was 88 years of age.

JOHN M. DOSSOR

Major John Malcolm Dossor, F.R.I.B.A., whose death occurred last week at Hull, was 67 years of age. He was Lord Mayor of that city in 1932-1933.

Major Dossor was the son of Captain F. Dossor. He was articled with the firm of Smith and Broderick in 1888, qualified for Associate of the R.I.B.A. in 1896, and was elected a Fellow in 1914. He was awarded the first diploma of the R.I.B.A. in town-planning in 1924.

Mr. R. Myerscough-Walker, designer of the R.A.F. Link Training Rooms, illustrated in this issue, in the cockpit of a Link Trainer.

Building

COPPER

In view of increase in wages rates which became effective last week, the basis prices of COPPER have been advanced as from February 20: Plain plates, £98 10s. (per ton basis with usual trade extras); rods, £96 (ditto); sheets, £96 (ditto), these prices being subject to 2½ per cent. discount to buyers.

GENERAL POSITION OF BUILDING INDUSTRY

"Position of building industry affects all sections and all cognate interests," states the current issue of *The Building Industries Survey*, published by the Building Industries National Council. "Unemployment among operatives is heavy and mounting, the professions are little employed and building materials manufacturers have experienced a severe decline in demand, leading, in some cases, to the closing down of works."

The representations made by the Building Industries National Council on behalf of all sections of the building group of industries to the Government are set out in this issue of *The Survey*. Four main points of those representations may be summarized as follows:

First, there should be some organ of Government responsible for the whole of the Government war-time building requirements. There should be one comprehensive pro-

gramme with no question of inter-departmental rivalry or competition, and no possibility of any department making a decision in the building field without other departments concerned with that field being aware of it.

Secondly, the industry responsible for carrying out the work should be brought into relation with the organ of government responsible for the official programme and taken into its confidence as to present and future requirements. At present many manufacturers are making for stock without knowing whether the Government will require those stocks, and may be forced to close their works without knowing whether the national interest as conceived by the Government is best served by continuing to use manpower to make for stock or by discontinuing production.

Thirdly, the Government requirements should be viewed in relation to the capacity of the industry so that it can be used to give balanced employment to a nucleus of the industry capable of rapid expansion and so that the margin of resources available for unemployment on civil work can be determined.

The building industry should be considered by the Government as an integral part of its general war-time economic policy to determine the extent to which the margin of available resources should be used for civil building.

The Council recognizes that it is essential in time of war for the Government to have first claim on the resources of all industries for the prosecution of hostilities, but submits that it is equally essential to build up the national income to a maximum by permitting, and indeed encouraging, as much civil activity as possible in order to increase the yield of taxation and thus provide what are literally the sinews of war. Moreover, the line drawn in official quarters between building for war purposes and civil building has rested on too narrow an interpretation of war purposes and military needs. It would appear that the location of war factories has been decided and the factories erected without consideration always being given to the need to provide decent housing for the workers to be employed in them, although such housing is as much building for war purposes as the erection of the factories themselves. Again, it appears not to be recognized in official quarters that there are civilian as well as military war-time needs whose satisfaction should take a high place in any scale of priorities. The contrast between the success of the evacuation policy in France and the position in this country is inseparably connected with the fact that our ally linked their war-time building programme to their evacuation needs while we did not.

R.A.F. LINK TRAINING ROOMS

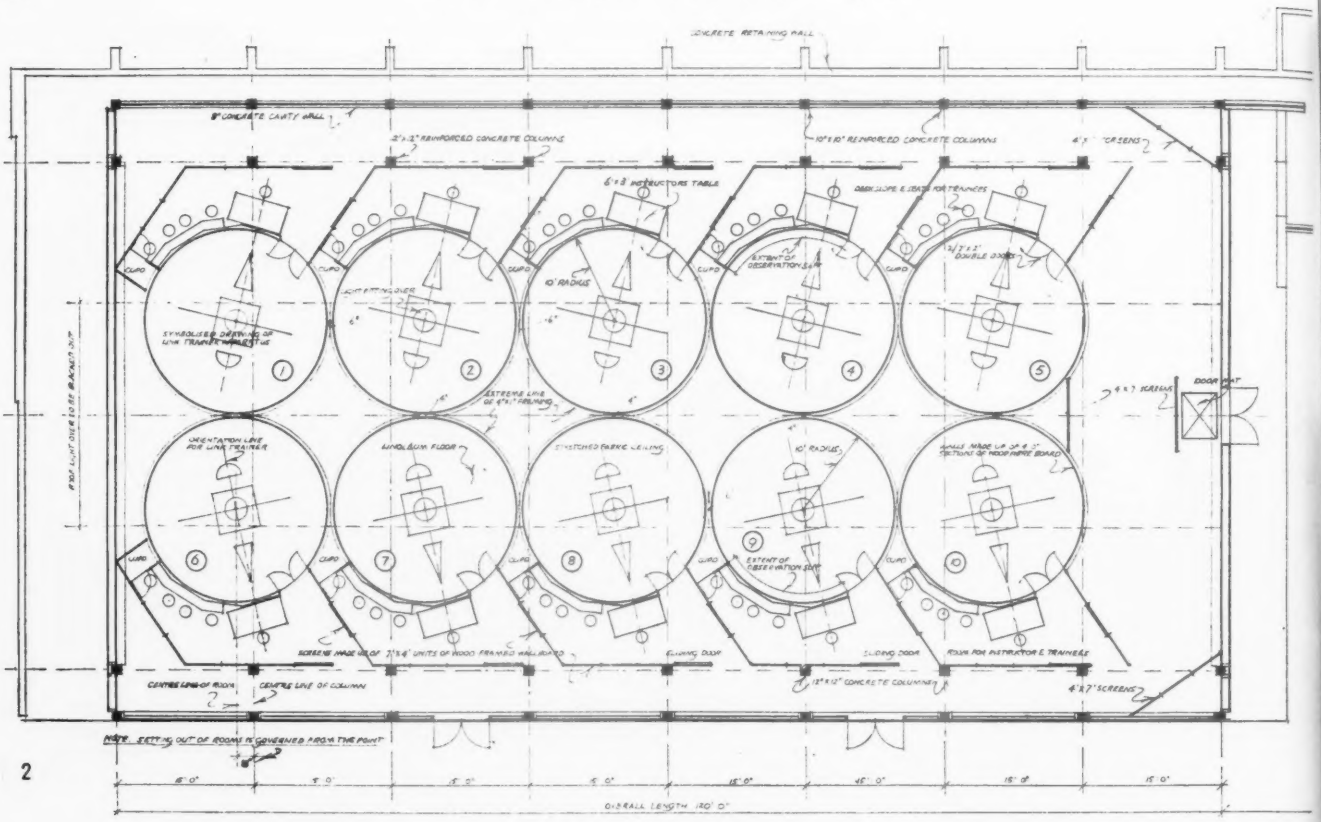
DESIGNED BY R. MYERSCOUGH-WALKER

1

1—A pupil flying the Link Trainer on a level course with its nose on the cyclorama horizon, 6 ft. 8 ins. above the floor.

PROBLEM—The construction and mural painting of rooms for "visual Link Training" for the R.A.F.

The Link Trainer is a miniature aeroplane, with full-size pilot's seat and controls and shortened tail and wings. It is mounted so as to reproduce, when the appropriate controls are moved, the motions of a machine in actual flight. The various indicator panels in the dashboard are so linked that their readings also correspond with actuality. Thus, when the machine is put into a steep dive and the throttle is pulled wide open, the air-speed



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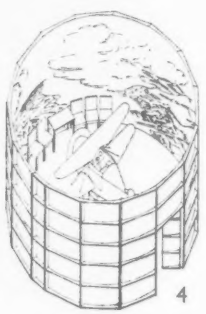

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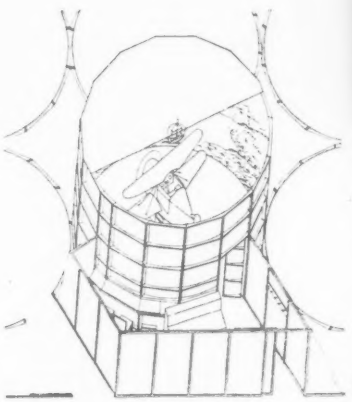

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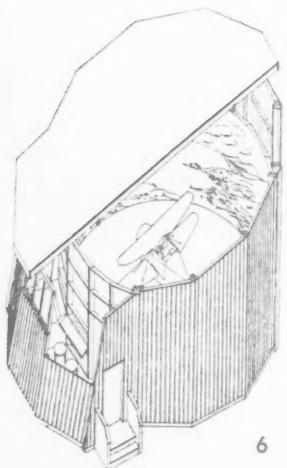

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2—Layout of Link Training rooms in an existing building. 3—A pupil in the Trainer talking to the instructor by telephone. 4, 5, 6—Three stages in the designs: 4, the first rooms, in which instructors and students were inside the room; 5, grouped rooms with instructors outside the rooms; 6, design for a room as a separate building unit in the open air.

3 R. A. F. LINK TRAINING

7

7—The Link Trainer banking. The cellulose film propeller gives right obscurity ahead and the upper wing the right limitation of vision for a primary trainer.

indicator flies up to maximum reading. Various air conditions—such as bumps—can also be reproduced.

Before the war, the Link Trainer was used for blind flying. A hood was placed over the pilot, who then "flew" a prescribed course through various air-conditions. The student was linked with the instructor by telephone, and a device reproduced his actual course on a map.

With the outbreak of war, however, it was decided to use the Link Trainer for primary training as an open machine, thus saving petrol and avoiding the drawbacks of bad weather conditions. The pupil was to be taught the feel of controls, primary evolutions, the results of simple mistakes and level flying in various weather conditions.

The main problem to be overcome in this unhooded use of the Link Trainer was the creation of illusion in the pupil. He had to be made to feel as certain as possible that he really was in an aeroplane at a height of 1,500-2,000 feet.

In detail, this problem before the architect and his collaborators was the construction of cycloramas representing the various climatic and geographical conditions which the pilot is likely to encounter. These conditions were resolved into four types :

(1) Sunny landscape with clear horizon.
(2) Mountainous landscape with level horizon lost.
(3) A city with smoke-pall obscuring horizon.
(4) Mist over the sea—visibility nil.

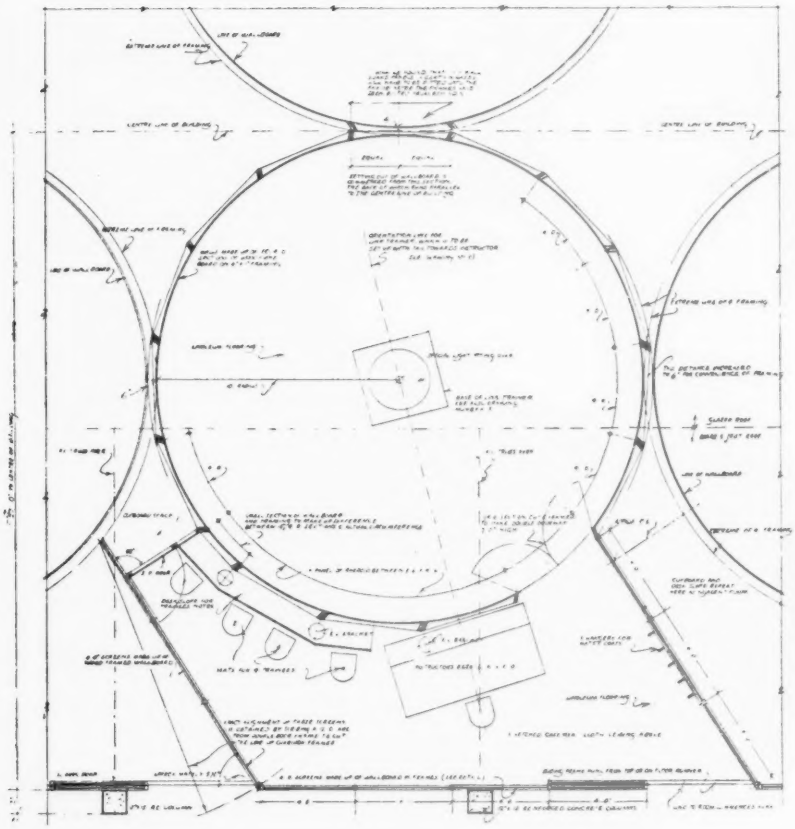
SOLUTION—An existing room in the Midlands had landscapes painted on walls and the instructor sat in the room.

The first alteration in the new rooms was the substitution of a cyclorama for a square room ; and after the first few rooms had been built, the instructor and pupils were removed from inside—an observation panel being provided at seated eye-level round a third of the room.

In the rooms the horizon is at 6 ft. 8 in. from the floor, and objects on the cyclorama indicate cardinal compass points by which the pupil can check his turns.

A shortened top wing, and a reproduction of propeller obscuration by a circle of suitably abrased cellulose film, have been added to the Trainers.

ROOMS • DESIGNED BY R. MYERSCOUGH-WALKER



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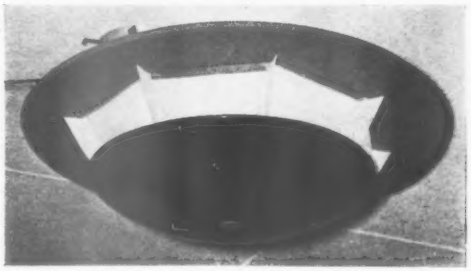

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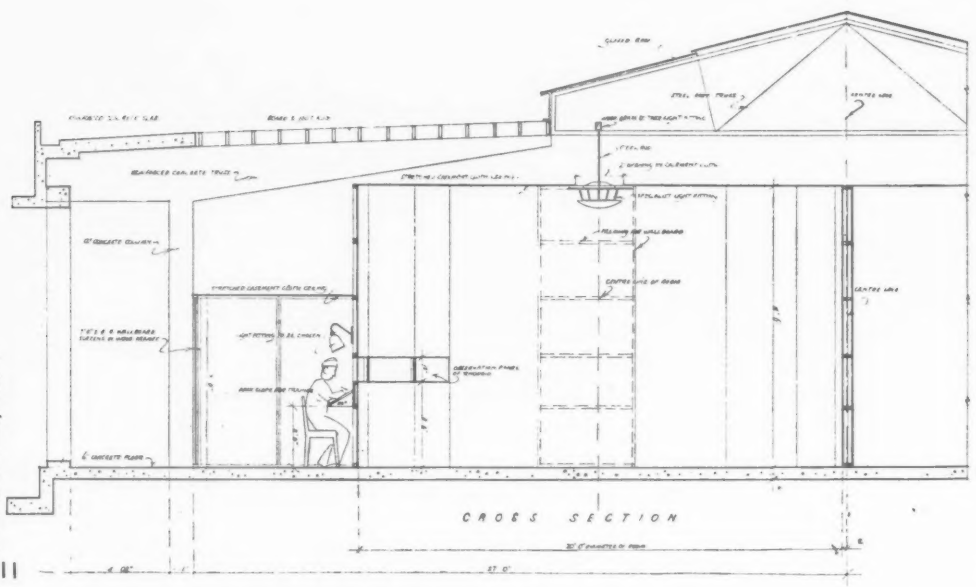

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8 & 11—Details of the construction of the rooms in an existing building. 9—outside the rooms : doors are 4 ft. wide to allow of entry and removal of Trainers. 10—the octagonal light fitting, which allows of sections of the cyclorama being differently lighted to resemble sun, mist, rain and so on.

CONSTRUCTION—The ideal method would have been to build each training room separately in the open air ; but, in general, the rooms have been; and are to be, set up in existing buildings, and this necessitated a standardized and removable construction.

Temperature changes and their effect on painting surfaces proved a great difficulty. Various schemes were tried out, or their possibilities fully considered. Finally, fibrous wood hard-boards on wood framing, painted direct in oils and flat varnished, was decided to be the best—though various other methods were used in the rooms illustrated.

MURAL PAINTING—The only function of the mural treatment in these rooms was the creation of illusion—an objective opposed to that of any other kind of mural painting. The English landscape from the air has a quality which is quiet in colours, tones and contours. A landscape seen from the ground is backed usually by a light sky, and the range of tones vary from black to white. From the air, however, this violence does not exist, and it has been interesting for the architect to watch the Air Ministry's view of realism conflicting with the painters' view of realism.

The painter had to set aside his own ideas about painting in

R. A. F. LINK TRAINING ROOMS

12

12—A cyclorama photographed past the tail of a Trainer. The paintings are designed to reproduce the landscape as seen from a height of 1,500-2,000 ft.

order to produce realism, and this in spite of the fact that the average painter is convinced that what he paints is realism. It seemed to the architect that Constable, Girtin and Cotman—in fact most of the early English water-colour school painters—had this accurate sense of the English landscape, which has now been discarded for an inspiration derived from the French impressionists. It was curious to watch an experienced pilot study a painted landscape as seen from the air, and to find invariably that he knows this is not the sort of landscape that he sees when actually flying.

The paintings were executed by Ferdinand Bellars, Edward Carrick, Edward Delaney, Alec Johnstone and Ian White.

LIGHTING—An even light was needed on the walls over the whole circumference and, in addition, various portions of the landscape are illuminated with different colours. The fitting used has eight facets, each containing a 100-watt lamp before which glass panels of various colours can be fitted.

Contractors : Constructional work by Messrs. Fitups ; lighting fittings by Troughton and Young ; canvases by Messrs. Holliday ; and door furniture by Taylor Pearse.

DESIGNED BY R. MYERSCOUGH-WALKER

C. F. A. VOYSEY

[*BY JOHN BETJEMAN*]

To celebrate the award of the Royal Gold Medal for Architecture to Mr. C. F. A. Voysey, the* JOURNAL *publishes this short review of Mr. Voysey's earlier life and influence on architecture and design.

THE Voysey family is related to John Wesley. When Frank O. Salisbury, a popular painter, was commissioned, a few years ago, to paint a portrait of Wesley, Mr. C. F. A. Voysey sat for the portrait.

Mr. Voysey's father was a Church of England clergyman, the Rev. Charles Voysey (1828-1912) who was deprived of his living for unorthodox preaching and writing in 1871. His beliefs were somewhat Unitarian and Liberal, and I imagine that his unorthodoxy differed little from that of the present Bishop of Birmingham. After this deprivation, the elder Voysey founded the Theistic Church, whose headquarters were in Swallow Street, Piccadilly. His son, Charles Frances Annesley (b. 1857), the subject of this review, holds his father's beliefs, and built Annesley Lodge for his father in Platt's Lane, Hampstead, early in the present century.

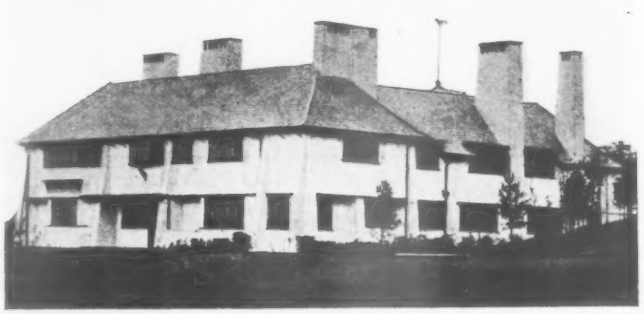
I mention so much about Mr. Voysey's ancestry because it explains his own individualism and because Mr. Voysey is proud of the asceticism and spiritual sincerity of his forbears.

It is impossible to open a book on modern architecture today without seeing a reference to C. F. A. Voysey. "In England, Voysey and Mackintosh were the pioneers of the modern movement." "William Morris and Voysey led the way to the simplicity of the modern style." "Voysey, Morris, Walton and Mackintosh." "Voysey and Baillie Scott and Mackintosh," etc., etc. There is no doubt that Voysey's influence on domestic architecture has been greater than that of any other architect; for Voysey produced a type of small house, covered with white rough-cast, with sloping buttresses, widely projecting eaves, prominent chimneys, and little external decoration beyond the disposition of horizontal rows of small oblong windows close under the eaves and in level rows only a few feet above ground level on the ground floor. The prevailing colour was white, often with a broad band of tar round the top of the chimney, contrasting with brick red pots. Curtains, covered with gay trees and birds, designed by Voysey, fluttered from the windows; ironwork cut into humorous shapes acted as hinge and latch to doors of unstained oak; oak chairs had stalwart vertical lines and a pierced heart in the centre of the back, and plain rush or fabric-covered seats; generally, a green fabric contrasted with the oak. Spoons, forks, toast racks, rugs, cupboards, wallpapers and wall coverings (in a house on Chelsea Embankment the walls of the drawing room are covered with beautiful slabs of dark green Westmoreland slate, carried up as far as the broad white frieze)—all these were designed by Voysey. He makes himself acquainted with everything connected in a house from the foundations to the spoons and forks—wherever possible, he designs them all. Conscious Voysey influence may be seen in the early work of Lutyens, Baillie Scott, the Tugwells, and scores of other late nineteenth century architects.

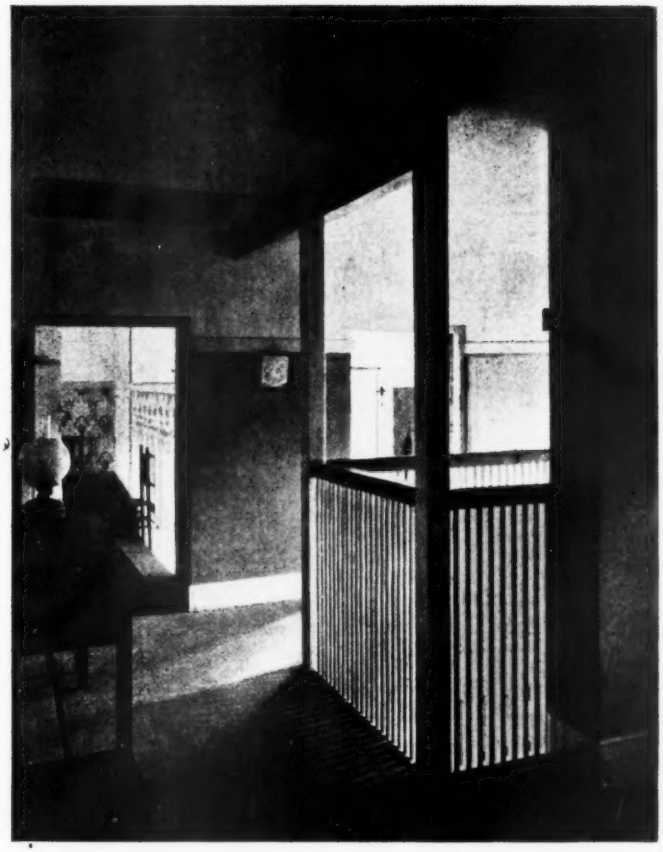
But people are wrong to associate him with Mackintosh and George Walton and the art nouveau. He was never creating shapes out of his own mind, nor even out of the roots of the water lily: he would prefer the flower. He refers to the art nouveau architects as "The Spook School." Again, he has his delight in thorough and varied craftsmanship in common with Morris, but Morris's outlook and political views are not Voysey's. "Morris was too much of an atheist for me."

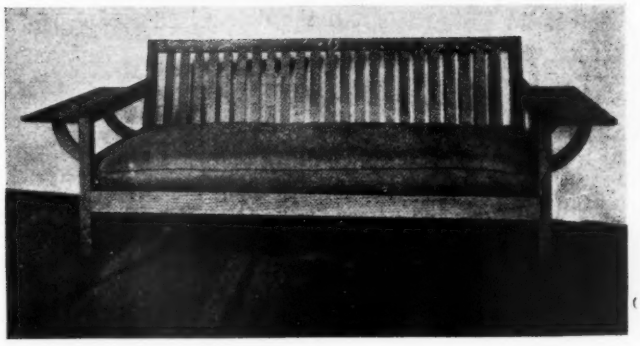
Voysey's architecture is based on first principles of Gothic building. The disposition of his windows is determined by the plan of the house, not by its external appearance. He is a keen Gothic revivalist, sees no merit in any classic buildings in England—which he calls "Pagan,"—honours the work of Pugin, Bodley and Comper among architects. Nothing will persuade him that Barry, not Pugin, designed the Houses of Parliament. He reverences the past, and desires not to rebel but to grow. In a letter to me of last year he says "Architecture to me is a manner of growth. The traditional way of using material has taken generations to develop. Rather than think of doing anything new, I have only applied old traditions to new conditions. There is nothing new in any of my architecture, but new thought and feeling, which, after all, is only living development of what I have inherited from my ancestors coupled with the spirit of my time." One can understand, therefore, how puzzled he must be to find himself associated with steel and glass and concrete buildings, he, the domestic architect of the last phase of the nineteenth century Gothic Revival. Yet Voysey's simple solid houses have more in common with straightforward engineering than the work of Wren or the latest modernistic church.

Voysey has influenced contemporary architecture as much by his personality as by his buildings. One sees, in his houses, the thought, the sincerity and the aims of the architect. Voysey houses helped other architects to see and feel by their transparent honesty. The uncompromising sincerity of Wesley and the Rev. Charles Voysey comes out. Today, architects talk of pandering to their clients, they live in fear of the sack, they are harassed by worldly considerations, making money, paying sub-



"Perrycroft," a characteristic house by C. F. A. Voysey, built at Malvern in 1893.





Above, a toast-rack in silver; right, a seat in oak without stain or polish, designed about 1906. Top right, the first-floor landing of Mr. Voysey's former house at Chorley Wood, designed in 1899.

scriptions, having enough to eat. Their buildings are timid and full of doubt. Am I being too modern? Not modern enough? These problems have never bothered Voysey. He goes his own way and gives himself the sack, when his conscience is opposed by a patron. There is an apocryphal story that he refused to do any more work for a rich person because she chose her own curtains for one of his rooms. He is not concerned with money, but with his work. That is why his work, although it is so personal, lacks ostentation of any sort. And his reverence for eternal truths saves him from mere eccentricity.

Mr. Voysey himself is as individualistic as his work—his coat made without a lapel because it is a needless appendage, his specially made pipes adapted from matured clays dug up in London building sites, his blue collars and ties, his bold clear handwriting, the practical tidiness of his personal furniture. Above all, there is his refreshing conversation, humorous and didactic, and through much of it runs a sense of the importance of spiritual values above all others.

Two years ago I made a reference to him in an article which he happened to see, and he wrote " In my eighty-second year it is very gratifying to find oneself still remembered." The Royal Gold Medal is a far more satisfactory form of remembrance. But neither medals nor articles are needed to remind us of one of the most famous and influential architects of the last fifty years. *Circumspice!* among the better English buildings of today.

SOCIETIES AND INSTITUTIONS

A.A.S.T.A.

Below is the memorandum on the Government's new evacuation scheme which was submitted by the A.A.S.T.A. Evacuation Committee last Thursday to the President of the Board of Education and to the Minister of Health :

Memorandum on the Government's New Evacuation Scheme

The Government have announced a new evacuation scheme, to be put into operation when air raids have developed to such an extent that they consider it desirable. An examination of it gives rise to such grave misgiving that attention should be drawn to its most undesirable features while there is still time to rectify them.

The Committee bases its opinions on the

research it has carried out into the working of the first evacuation scheme, and is especially concerned with problems of living accommodation and facilities for the education, health and welfare of evacuees. Its first published report, "The Accommodation of Evacuees in Reception Areas," was the result of information collected from many parts of the country; and the second, "Evacuation in Practice," was based on a detailed survey of a sample reception area, the town of Wantage and eleven surrounding villages in Berkshire. Both these reports contained constructive proposals for measures necessary to make evacuation a success.

The New Scheme—a Plan for Panic?

After nearly six months the first scheme has virtually failed. The second contains no further constructive measures, and there seems little reason to believe, therefore, that the only new point, the signing of a pledge by parents, will make this plan more successful than the first. The new scheme deals only with school-children, and there is no provision for children under five, though these are in some ways the most important.

The really disturbing feature is that the scheme is to be put into operation only after air raids have commenced, and that the actual removal of evacuees is to be spread over a longer period than before. If mass raids occur—and it is clear that the Government think them probable—the loss of life and general dislocation will be very grave. The Minister of Health realized this when he said in the House of Commons that should intensive bombing start "all our scruples about preserving the individuality of the schools would have to go by the board." We may therefore describe the new scheme as a "plan for panic."

A Positive Policy

In the opinion of the Committee a correct policy should utilize what remains of the first scheme as a nucleus for a new scheme based on the encouragement of re-evacuation now. This would entail radical improvement of conditions in the reception areas and the formation of closer contacts between local authorities and parents' organizations in the corresponding evacuation and reception areas. We must make a plan that will be used because people see that it is to their advantage, and not because they are driven to it by terror.

The first scheme placed an intolerable burden on the foster-parents, and the most necessary single measure to ensure the successful billeting of schoolchildren is therefore the provision of facilities for full-time education and communal feeding. By this means both the education and physical well-being of the children will be safeguarded, and many of the buildings which will need to be provided could, in peace-time, be used as much-needed village halls and social centres. An immediate step to be considered in relation to evacuation needs should be the resumption of rural school building which was stopped at the beginning of the war.

In addition to this there must be residential camp schools for many of the children. Much can be learnt from those Government camps which have been opened. The teaching and staff accommodation appear to be inadequate, but the chief fault, and one about which the teachers are very concerned, is that they have been conceived as separate units isolated from the life of the locality. The number built is so small that it hardly contributes to a solution of the general problem, but it is nevertheless a welcome step.

The present official scheme for nursery centres for children under five should immediately be widened in scope to prepare for additional children from the towns, but in addition *residential* nursery schools should be set up, some of them in new buildings and some by the adaptation of existing buildings. Preparations should at once be started in the evacuation areas by the organization of suitable groups of children through welfare centres and clinics and through reopened nurseries and day nurseries. Only in this way can the confidence of the parents be won.

It Can Be Done

Such constructive measures, which are essential if evacuation is to work, present no difficulties so far as the building trade is concerned. A *complete* scheme for the whole country would cost something of the order of £70 million. The amount of building work which has been stopped by the war is about seven times this: many builders are bankrupt, brickyards are idle, and architects are unemployed.

We believe that only the launching of such a scheme can answer the just complaints of the country people, and dispel the doubts of parents, and so ensure the success of the Register which is to form the basis of the new evacuation scheme.

I.A.A.S.

A meeting of the London and Home Counties Branch of the Incorporated Association of Architects and Surveyors was held last Wednesday. Mr. J. F. Swindlehurst, M.A., presided, and Sir Alfred Hurst, K.B.E., gave an address on "The Building Industry in War and Peace."

The lecturer said that two considerations dominated the present position of the building industry. One was that the timber shortage was acute; the second that we were still in the dark as to what sort of war this was going to be. We did not know whether or not within the next few months we might be plunged into serious air-raid difficulties making great demands upon the industry. Since the Great War we had looked more and more to building to keep the wheels of trade moving, and its importance from this point of view would be even greater after the cessation of present hostilities. In some other industries productive capacity had reached a point where but little further development was wanted, but that was not the case with building; and when we endeavoured to get back to normal life we should depend on it more than we had done in 1918. But then we had found the industry had crumbled away during the war years, and that difficulty might recur.

What sort of relationship would there be between architect and builder after the war? Would the architect endeavour to get the lowest possible price, or would he try after a fair price? An idea that competition was the only way to settle a fair price had grown up in Victorian days as a reaction against the time when to be a Government contractor was the certain way to fortune. Competition was all right where there was a reasonable balance between supply and demand, but in a state of society where the supply of most things was in excess of the demand it led to unsatisfactory developments. Looking over the country's industries today we saw a steady swing back from competition, and in one industry after another a tendency towards monopoly.

He was rather alarmed at this because he believed in the incentive to progress and efficiency which competition gave. One of the greatest problems facing us was to find a middle course between monopoly and excessive competition. Some people thought the fairest way to deal with building contracts was by private negotiations between builder and architect, with the quantity surveyor advising as to terms. This might sometimes be a good plan, but it was doubtful whether it would lead to that weeding out of the unfit which every industry needed if it was to be progressive.

EXHIBITIONS

[By D. COSENS]

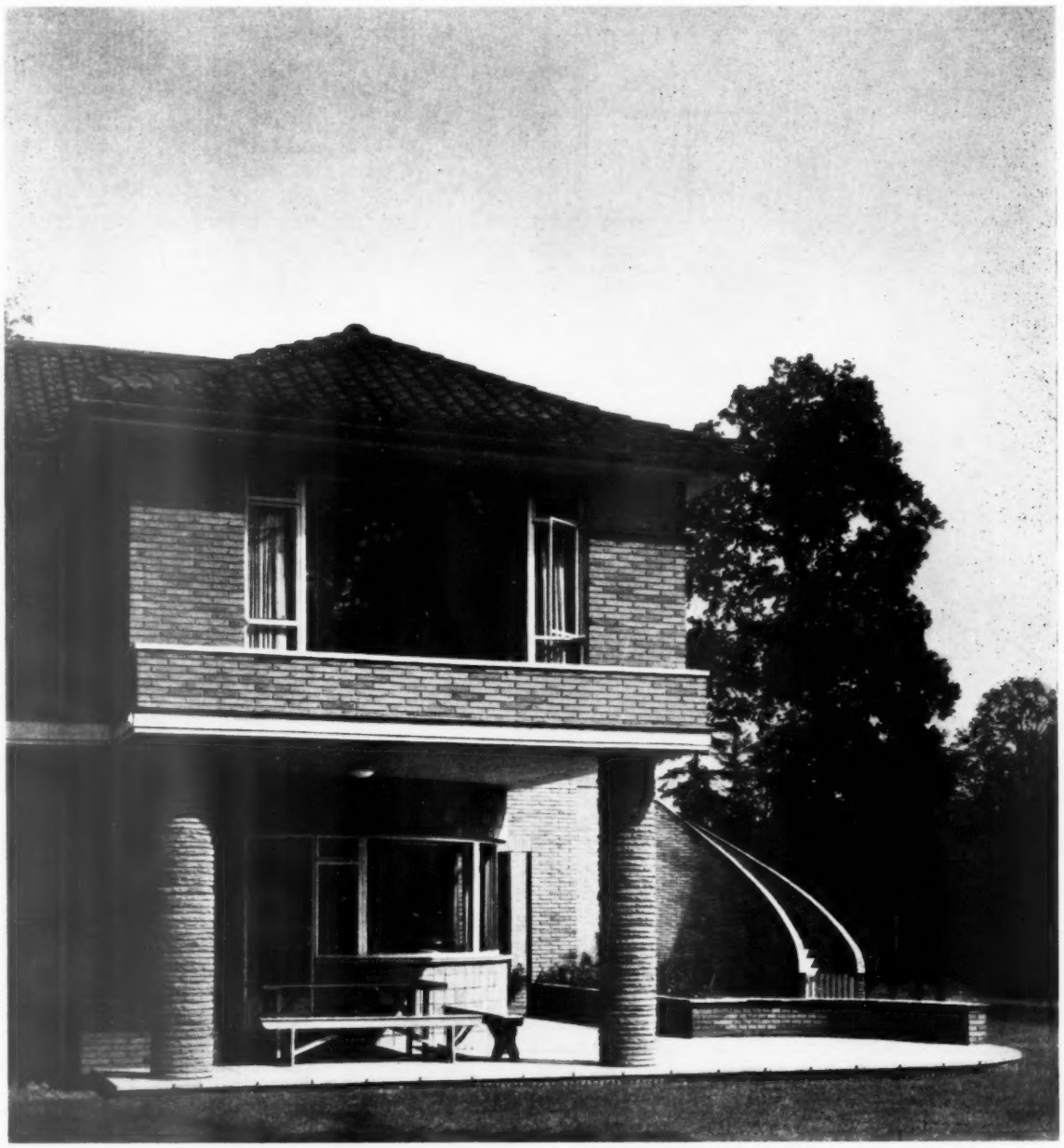
AFTER a lapse of some months the galleries have now become more or less normal, and those that are still open are showing interesting work. The London, Guggenheim and Mayor—the only galleries in London that consistently showed progressive painting—will be very much missed, for during the last few years they (and particularly the London) had become the recognized meeting place of everyone who was interested in either the performance or discussion of contemporary art. And the war has robbed us of the Museum of Modern Art, promised for last autumn.

In addition to the vast and praiseworthy, but highly debatable exhibition at Burlington House, there have been a number of good shows. The Lefevre recently held a small butexcellent collection. It was composed largely of the type of work one would expect from the various painters who were exhibiting, mostly at their best, but mostly without any undue shocks or surprises—with two exceptions. And these two, John Piper and Ben Nicholson, are so indicative of present trends that they need investigation.

For a long time both Piper and Nicholson have been two of the most interesting and most accomplished of the English abstract painters. Both are fine colourists, both excel at constructive design, which Nicholson in particular had reduced, in some of his white reliefs, to extreme limits. John Piper showed the first realization of the imminent exhaustion of the abstract idiom—of its possible reduction to a mathematical formula if it were pursued much further—and symptoms of recoil were apparent, more than a year ago, in his collages, and since then in his increasing preoccupation with architectural forms. For a long time it has seemed that both the refinements of abstract art and the extravagances of the surreal have finally exhausted themselves, and that, through some fusion of their best qualities, a return to a more virile form of realism than we have previously experienced was to be expected at any moment. In these four small paintings at the Lefevre there are very definite indications of this. Both Ben Nicholson and John Piper are using architectural and natural forms. In Nicholson's paintings the little box-like cottages control the landscape into the severity of an abstract composition. In John Piper's, far profounder, "Octagonal Church, Hartwell," the natural forms of trees opposed to an architectural severity, and the breath of an almost romantic atmosphere, produce a remarkably fine and sensitive work. His forthcoming exhibition will be looked forward to with the greatest interest.

HOUSE AT BERKHAMSTED

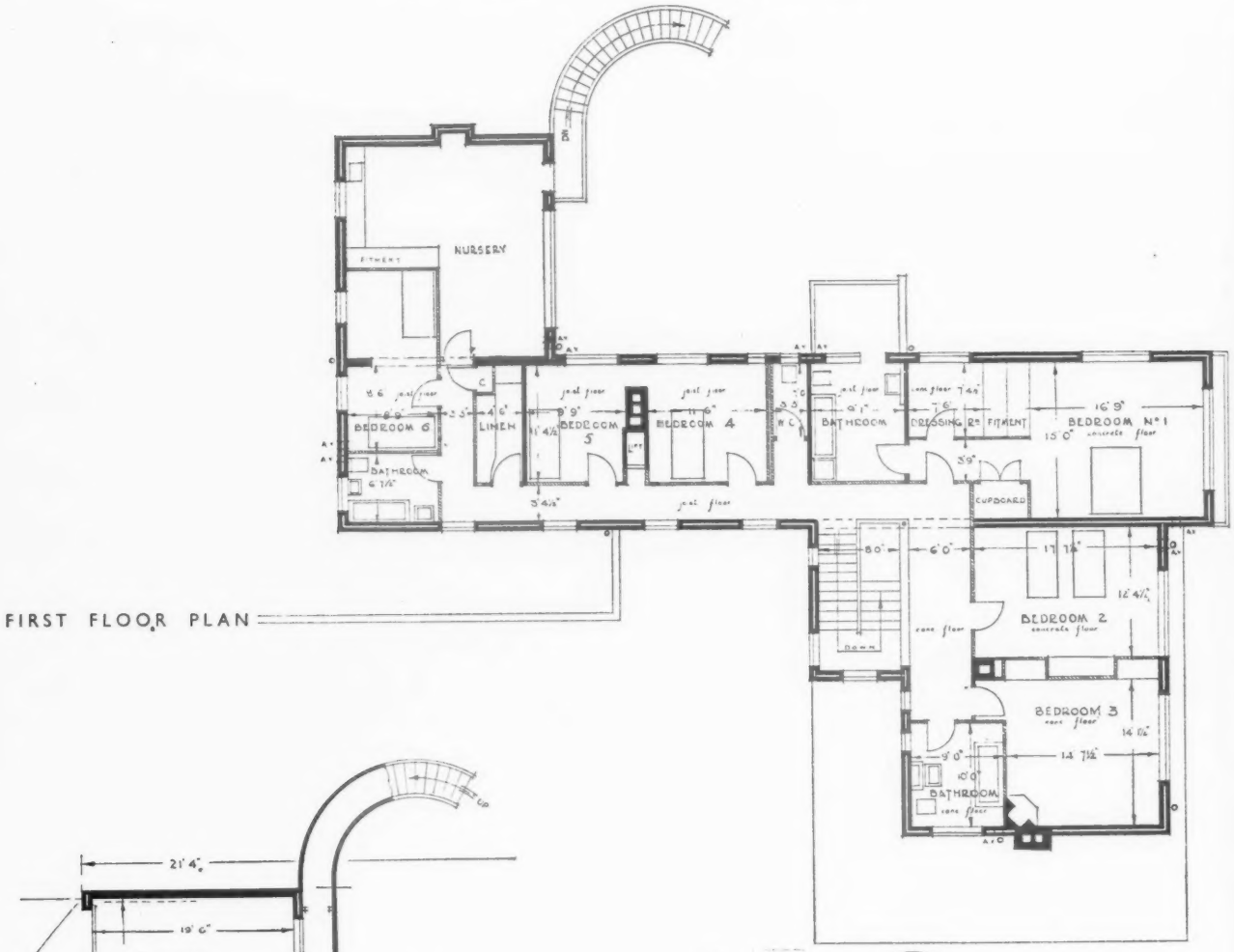
DESIGNED BY PARROTT AND DUNHAM



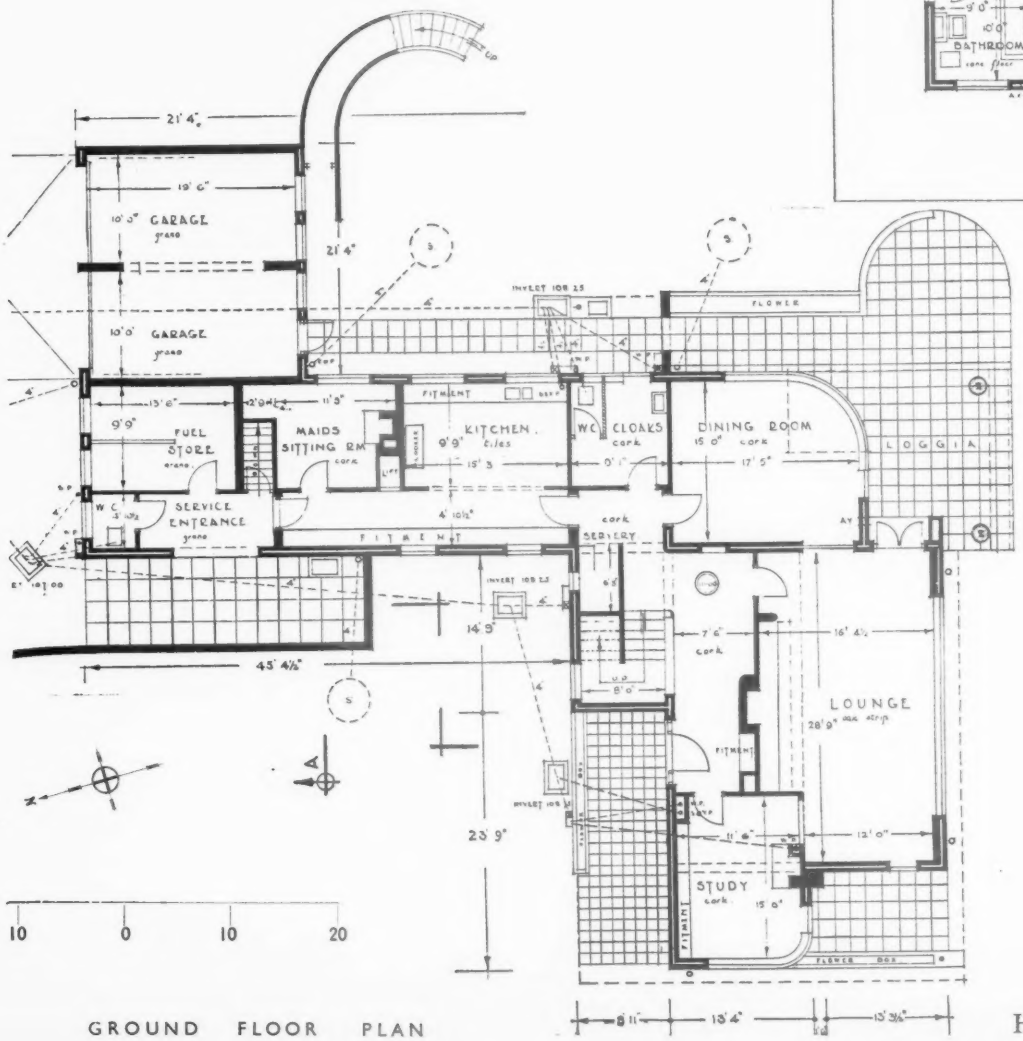
Detail of the terrace on the south front.

GENERAL AND SITE—The client desired a country house of contemporary design but with a rambling—rather than a compact—plan ; kitchen quarters to be isolated from the main part of the house ; and provision for the possible addition of stables. The site adjoins Berkhamsted Common.

CONSTRUCTION AND EXTERNAL FINISHES—External hollow brick walls ; hollow tile floor over lounge, dining room, study, cloaks and garage ; timber joist floor elsewhere. Balconies and canopies, R.C. Internal walls, brick and breeze slabs. Timber pitched roof with steel principals over large span ; flat roofs are covered with bitumastic felt roofing protected with asbestos tiles. External walls, special buff-coloured deep textured sand-faced bricks, with joints deeply raked. Canopies, rendered and painted. Windows, steel. Circular piers to loggia. York stone. The windows, gutter fascia and downpipes are painted cream, and the steel columns and balcony railings, torquoise blue ; underside of canopies and balconies are painted pale blue.



FIRST FLOOR PLAN

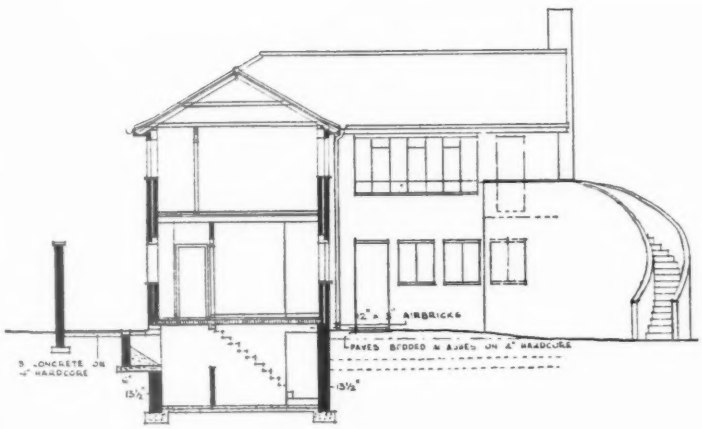


GROUND FLOOR PLAN

HOUSE AT

INTERNAL FINISHES—Walls and ceilings of all rooms are plastered smooth and distempered ; walls of hall and landing are rough-plastered with wood float finish. Floors of lounge and dining room are of oak strip ; kitchen, blue tiles ; all rooms on the ground floor are covered with cork tiles.

SERVICES—Small hand lift serves nursery from kitchen. Central heating by means of low pressure hot water radiators on gravity fed circuit from coke-burning boiler in basement. Hot water is supplied by calorifier heated by another coke boiler in basement.

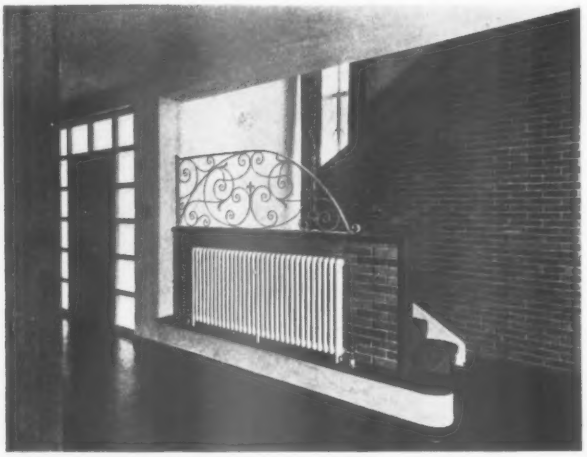


SECTION

The garden front ; top, the lounge.

BERKHAMSTED • BY PARROTT AND DUNHAM

HOUSE AT BERKHAMSTED • BY PARROTT AND DUNHAM



Above, the main staircase; right, the entrance hall and the kitchen. The general contractors were Jesse Mead, Ltd.; for list of sub-contractors, see page xvi.

LETTERS

Bombs and the Children

SIR,—No doubt your leading article, "Bombs and the Children," was meant to show concern for the safety of possible future architects. If this was your intention, it is a pity that you did not make it clear. If not, I fail to see the point of the article.

But if you wished to raise the question of the architectural future, why did you not mention such urgent problems as the improvement of public taste, or how English architecture as a whole can be reborn from a sham to a reality, from a scandal to a credit, from a weakness to a force, from a trickle to a torrent?

It is true that in war-time the profession can help greatly in the many problems of A.R.P. and so on, but this should not blind it to the far more important task which lies ahead. *As a profession, what is our War Aim?* I should be interested in the opinions of your readers.

EDWARD LEWIS

London.

[*By point we take it that Mr. Lewis means the connection of the article's subject with architects and building.*

The connexion is this: To be successful, the Government's second scheme for the protection of children must overcome defects which might lead to its later abandonment. These defects seem to be of two kinds: divided responsibility and lack of structural protection in urban areas; and lack of accommodation in the country.

Last week's article considered the points whose settlement will decide the size of the building programme which will be needed. This week we consider the programme itself.—ED., A.J.]

Timber

SIR,—The control of timber is one of the chief items in holding up building. The result of preventing buildings from being erected raises a difficulty in regard to builders keeping squads available for demolition work in case of air raids.

The building of wooden huts uses large quantities of timber. I have advocated the use of 4½-in. brick reinforced walls instead of timber, while a concrete floor, covered with some insulating material which would obviate cold floors, would avoid using timber for floors. The materials would not have to be imported. The walls would be as cheap as a wood frame covered outside and lined inside; this method could in my opinion be erected as quickly as wood.

Apparently those erecting the huts do not trouble, and it is not the business of the Timber Controller to question such use of timber. Could not something be done in this matter?

H. E. ROLLEY

Kidderminster.

Obscuration of Light

SIR,—We notice in your "Information Centre" (issue dated February 15), query No. 173, the point is being raised

concerning roof light obscuration. May we suggest that with Spring approaching the time will shortly be opportune for THE ARCHITECTS' JOURNAL to make a special feature of shuttering systems permitting the use of daylight.

We have been engaged on this work since the outbreak of war, and many industrialists who have been satisfied with artificial light during the winter period are becoming seriously concerned at the prospect of working during the summer months by artificial light.

Apart from the loss in efficiency, the actual cost of shuttering can in some cases be recovered in about twelve months by saving on the electric light bill in comparison with complete black-out.

BERNARD HILL

Director, Hills Patent Glazing Co., Ltd.
West Bromwich.

Temporary and Semi-permanent Buildings

SIR,—In the article on "Temporary and Semi-permanent Buildings" by Eugenio Faludi and Godfrey Samuel, in your issue for February 22, it is suggested that celluloid should be substituted for glass, "as a precaution against damage from blast in air raids." This statement suggests that glass cannot resist blast; but this is not the case, because wired glass, both the hexagonal mesh and the Georgian type, has high resistance to blast. This has been proved not only by the survival of wired glass in the explosion which took place in London shortly before the war, when several warehouses were badly damaged, but by tests that have recently been carried out at St. Helens, and which show that wired glass affords adequate protection against blast. Reports of these tests are available.

G. L. PILKINGTON

Director, Pilkington Brothers, Ltd.
St. Helens.

Architectural Criticism

SIR,—Like "Onlooker," I, too, am a layman, though perhaps better known to the police than "well known to many architects."

"Onlooker's" letter, published in your issue of today's date, has interested me. The brief editorial reply that followed appears to me to be shallow and designedly evasive.

"Onlooker" no doubt fully appreciated that Professor Reilly's Review of the Year was written for architects, and this fact seems to me to give greater force to his criticism.

Do architects, when they are in conclave together assessing the merits and demerits of a building, rigidly ignore "the usefulness, convenience and other aspects of good design"—are they, in their strictly professional capacity, interested only, or even mainly, in appearances?

If, as you would have us believe, the modern architect, whatever his predecessors may have been, is primarily a planner, a designer of buildings efficient for their purposes (light and air, circulation, the efficient arrangement of parts, fitness for function, and so on and so on), then surely these are the aspects of good design that mean most to him. A reviewer, therefore, writing in a professional journal, might be expected to deal primarily with these aspects since they are of primary interest to the readers of that professional journal. All this seems logical, or isn't it?

I imagine that "Onlooker" still remains rather mystified.

Surrey. "LOOKER ON"

[*We had no intention of being evasive. It is quite true that architects do pay great attention to planning, structure and fitness for purpose in buildings: they spend most of their time doing so. But from time to time they also like to sit back and look at the results. There is, in our view, nothing evasive in Professor Reilly's confining his review to those results.*—ED. A.J.]

Post-War Paradises

SIR,—I was disgusted with Astragal's weary complaints last week about "post-war paradises." Commenting on the historic meeting of 150 representative technicians at the R.I.B.A. to discuss the problem of social replanning after the war, he complains that when a *discussion group*, tackling a great subject of this kind, turns itself into a *group with a programme*, he for one "feels great discomfort."

This strikes me as a most un-A.J.-like attitude. Heaven save us from discussion groups in these days unless they *do* actively organize themselves as groups with a programme.

But Astragal has other extraordinary complaints which he cannot be allowed to get away with. He complains that—

"An obsession with ideas and schemes of the largest possible size has spread through societies, committees, schools and individuals. Students will hardly accept a scheme unless it involves the replanning of a continent."

The second sentence, of course, is peevish exaggeration. But as for the "obsession," let us welcome it as one of the few encouraging signs of the times.

"All the time, everywhere (wails Astragal), societies, groups and committees are setting cheerfully about some research which, for its tolerable performance, would require the full-time, life-long labour of half-a-dozen exceptionally able men."

True. But *somebody* has got to do the groundwork, and let us urge for all our worth that the half-dozen exceptionally able men should be employed straightway to give their full-time, life-long labour to the job. What are they doing now?

I shall have to quote (and demolish) one more paragraph:

"Most people agree vaguely with the principles of Territorial Planning, National Roads, Federal Union and all that. What they need to reinforce their loyalty is just one small bit of practical achievement towards realizing any one of them."

Fair enough. But if we look at the United (*and* democratic) States of America, we shall see more than a "small bit" of practical achievement in *all* of these three principles: Territorial Planning, National Roads and Federal Union. Our job is to point unceasingly to these embryonic achievements and persuade the people of this country, and their representatives, that the planned world we visualize is not a distant ideal but an immediate practical proposition.

In this season of anguish people are ripe for propaganda. Let us see that they get the enlightened kind.

R. GARDNER-MEDWIN

Old Coulsden.

[*Astragal will reply next week to this letter, which was received as we were going to press.*—ED. A.J.]

A Correction

SIR,—In your issue dated February 8, a comment which appeared in your Notes and Topics column was founded upon an incorrect newspaper report.* It referred to an address which was delivered at a meeting at Waterhead Parish Church, Oldham, where the speaker (who was said to be an architect and is not) summed up by saying that "art is the external contemplation of the human soul." This quotation is incorrect, for the word "counterpart" was actually used, and "contemplation" is an error on the part of the reporter.

If your correspondent thinks there is some veiled significance between my suggested definition of art and tongue-twisting bees, I suggest he should have been present at my lecture to be more fully acquainted with the substance thereof.

My address was based upon the assumption that art is the external counterpart of the human soul, and then I went on to describe how the thoughts of men had been expressed in various ways in the buildings which they had erected from time to time, dealing particularly with ecclesiastical architecture and the moral idealism inherent in its structural features.

Finally, may I point out that my vocation is that of an interior decorator and not an architect as was asserted in both your JOURNAL and the newspaper report?

ANTONY T. HODGE

Oldham.

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* *The note referred to read:*

Architect Antony Hodge of Saddleworth, addressing last week a "Be Bright" meeting at Waterhead Parish Church, summed up by saying that "art was the external contemplation of the human soul." For the next "Be Bright" meeting a Tongue-twister Bee has been arranged.

SHOWROOMS AND OFFICES, HAMPSTEAD

DESIGNED BY H. COURTENAY CONSTANTINE

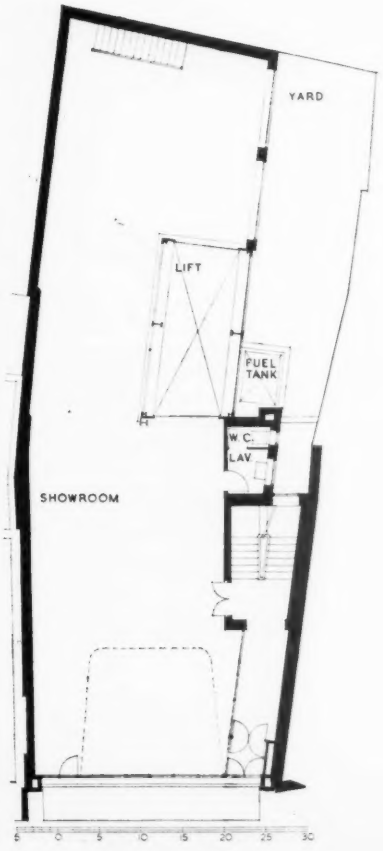
GENERAL AND SITE—The premises were designed to be used ultimately as motor car showrooms but, at present, the first and second floors are being used as offices, with the basement, ground and mezzanine floors as showrooms. The site has a narrow frontage, but is of considerable depth, and therefore presented difficulties in natural lighting. This was the chief factor governing the planning. Maximum width of window was required to the street at ground floor level, and additional display from the street was made possible by the curved front of the mezzanine floor. A considerable amount of filing space was required, which was formed in the roof-space.

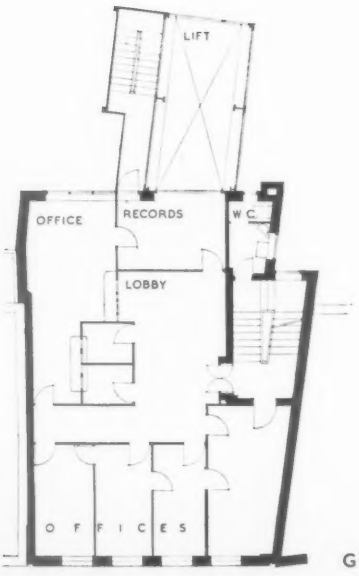
CONSTRUCTION AND EXTERNAL FINISHES—Steel-frame, with fireproof floors. The main staircase is of reinforced concrete. It was considered desirable that the building should be Georgian in character, to harmonize with the general appearance of the street. Front elevation is faced up to first floor level with Portland stone and, above this level, with multi-coloured facing bricks and Portland stone dressings. Pitched roof is covered with sand-faced pantiles.

INTERNAL FINISH—Walls and ceilings are plastered and painted, and the finishes generally have been kept simple and light, to form the background for display. Floors are finished with composition flooring. The radiators are of the solid panel type, set flush with the walls. The main entrance corridor and staircase are finished in terrazzo.

The general contractors were Sabey and Sons ; for list of sub-contractors, see page xvi.

The main front. The flood-light brackets at first floor level are of wrot-iron.





GROUND AND TYPICAL FLOOR PLA

FROM THIS WEEK'S QUESTIONS:

★ *HOW can service mains which have been broken by bombing be quickly repaired?* - - - Q187

★ *IS authoritative information available as to the relative merits of proprietary paints for a particular purpose?* Q188

★ *WHAT is the approximate cost of turfing and planting shrubs and trees?* - - - - Q190

★ *WHAT materials can be used as substitutes for timber in hutments and housing?* - - - Q193

THE ARCHITECTS' JOURNAL

INFORMATION CENTRE

SINCE it was started soon after war broke out, the Information Centre has been flooded with questions, many of which have been published each week.

In the first two months most of these questions dealt with emergency matters — A.R.P., controllers of materials, and wartime building organization. But as the emergency passed the questions became wider in range, and it was obvious that there was a need for a clearing house for all problems of building and architectural practice.

The JOURNAL has therefore prepared the Centre for dealing with any architectural or building difficulty which is encountered by any member of the industry.

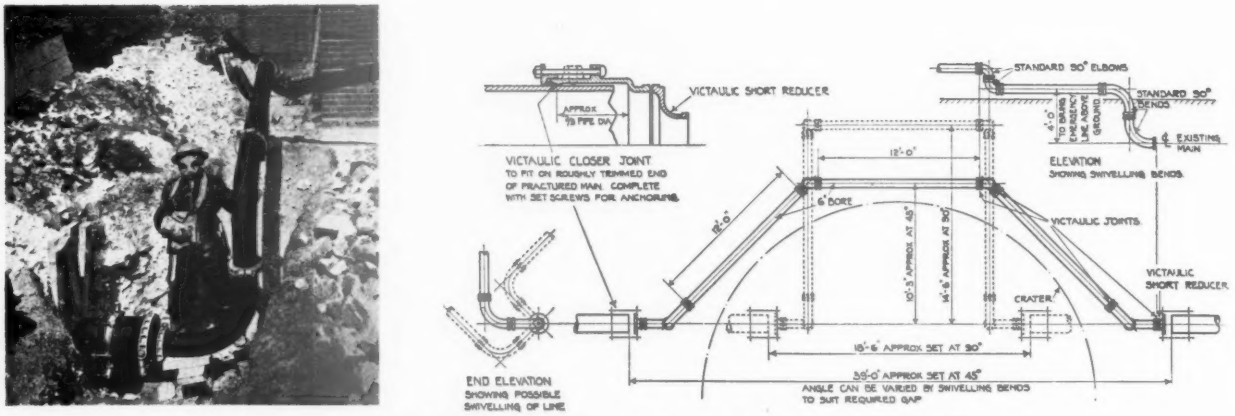
If you want an answer to any question about building or architecture, send it to:

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

or ring the Architects' Journal Information Centre at

R E G E N T 6 8 8 8

Q186 RAMSGATE.—*A firm to which I acted as Consulting Engineer in the matter of designing their air-raid shelter has gone into LIQUIDATION upon the application of the debenture holder—formerly the managing director, and a receiver has been appointed on his behalf. The shelter was completed and final certificates issued to the two contractors concerned before liquidation took place, but the firm failed to honour my certificates. Owing to the comparatively small value of the contract and with th agreement of the contractors, no interi certificates were considered necessary- the whole sum being payable under the final certificates. The receiver advises me that no funds are available to meet the claims of unsecured creditors, an hence the contractors have not receive a penny in respect of the work done. The Home Office grant has been applied for by the receiver on behalf of the firm and has, I understand, been approved, but so far no payment has been made. I have advised the receiver that under the circumstances I consider that this grant—given for the specific purpose of compensating the firm for the construction of the shelter—should not be placed to the credit of the debenture holder but allocated to the contractors and myself in proportion to the amounts of our claims against the firm. The receiver, acting for the debenture holder, has consulted him and advises me that he is considering my*



System of temporary connections for fractured mains described in question 187.

suggestion "not unfavourably." This statement appears to me to be too vague and inconclusive and no guarantee that the grant will be applied for its legitimate purpose. Under such circumstances, has the Home Office any power to make the grant direct to the claimants concerned or to place any restrictions upon its payment to the firm so as to ensure that it does go towards the cost of construction of the shelter?

It is indeed doubtful whether there is any official approach that can be made between interests representing the contractors and yourself and the authorities responsible for payment of the grant. There is no community of contract between the parties. There is, in effect, a contract between the Home Office and the employer and one between the employer and the building contractor and yourself, but community of interest between the Home Office and the parties whose interest you represent could be obtained only by agreement with the employer. While the moral issue is obvious, the legal aspect of the case is the one which will count eventually and, failing satisfaction through ordinary channels from the employers' interests, legal opinion and possible remedy should be sought.

Q187 BOROUGH COUNCIL, LONDON.—*What methods are available for quick repair of street water and gas MAINS FRACTURED BY BOMBS?*

One firm* has evolved a system of temporary connections for fractured mains. A complete range of fittings and pipes are available and in diameters from 3 in. to 18 in. This by-pass system of assembly consists essentially of connecting a steel pipe to the rough trimmed plain end of an existing cast-iron pipe by means of a specially designed A.R.P. coupling, and on this steel pipe addition to attach a closer end to suit a small diameter by-pass and for the by-pass to be led and connected by similar means to the other end of the damaged main, the connecting by-pass piping again being in plain-ended steel pipe with the joints held by the patent flexible coupling. This system of by-passing can be laid around the crater formed by the bomb and with equal facility pass over obstructing heaps of debris or can be dropped into the bomb crater. For pipe joints adjacent to the broken main that are disturbed although not fractured, an effective repair can be made by using the patent clamp. The system is illustrated in the accompanying diagram and photograph supplied by the manufacturers.

* *The Victaulic Company, Ltd., Kings Buildings, Dean Stanley Street, London, S.W.1.*

Q188 PUBLIC AUTHORITY, MANCHESTER.—*Is unbiased information available on relative merits of PROPRIETARY PAINTS, particularly with reference to their suitability for (a named purpose)?*

It is regretted that such information is impossible to procure—or at least, only by engaging privately a consultant to carry out the necessary tests on representative samples of the paint and reporting thereon. Nearly every person who specifies for paintwork in large quantities is now accustomed to rely on particular proprietary brands for particular purposes; but this confidence is based at least as much on the readiness of the manufacturer concerned to remedy any defects which arise (whether caused by the paint or the surface to which it is applied), as on the intrinsic merits of the paints. Widespread consumer research on paint is not contained within the scope of the activities of any known disinterested body. Nor for that matter is it necessary for a manufacturer to continue to use the same materials or proportions thereof in paint marketed under a trade name. There are organizations, however, such as the Paint Research Station at Teddington, which might find it within their province to advise the inquirer on the class or type of paint and paint specification most suited for any particular purpose.

Q189 GOVERNMENT DEPARTMENT, HARROGATE.—*Where can supplies be obtained of "Vitreocolloid" clear PLASTIC SHEETING?*

From inquiries made it would appear that the position with regard to supplies is as follows: The material was first marketed in this country by a glass-working firm who ceased trading in this line in 1933. Subsequently it was manufactured and marketed in this country by a firm named Collecetone, Ltd., but marketing was given up by this firm about 1937. It appears, however, that the works manager of this firm is now engaged with Utilex, Ltd., of Middle Mill, Mill Street, Kingston-on-Thames, and producing "Utilex," a form of sheeting similar to that marketed previously under the name of "Vitreocolloid."

Q190 QUANTITY SURVEYOR, BARKING.—*Can you give details of the cost of turfing and the planting of TREES AND SHRUBS for preparing an approximate estimate for the layout of a garden front to factory offices?*

It appears that the most useful data

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February . . .

IN FEBRUARY Rugby football usually works up to its peak. Last year three of the internationals were played during the month as well as one of the service matches. On the 18th there was a characteristically enthusiastic crowd at Twickenham to see the light and lively Irish XV score a handsome win over England by 5 points to nil.

Enthusiasm, healthy and vigorous, is the keynote of these contests between country and county: the enthusiasm of meetings with old friends, enthusiasm in the stands and on the field. It is sad to think that this year Twickenham will see no big rugger. The echoing emptiness of the great stands will be a reminder of the larger contest which is taking place, a contest in which the value of enthusiasm is increased. Enthusiasm is to-day as necessary in the factory, in the home or in the trenches as it was last year on the field of play.

readily available is contained in an article in the *Contract Journal* of September 29, 1937. In this the following approximate costs are given:

1. Turf laid, including preparing foundation, 8d. per sq. ft.
2. Shrubberies. Shrubs at 2 ft. spacings and digging over, 4s. per sq. yd. (shrubs p.c. 1s. 3d. each).
3. Trees, including planting, stake and wire cage, 13s. each (trees p.c. 4s. each).
4. Verges of gravel 2 in. on ashes 2 in., 1s. per sq. yd.

It should be noted, however, that the costs given were based on 1936 prices and that the work described was in the layout of roadways; so that for purposes of the present inquiry it would be advisable to use the prices only as a guide, or to add, say, half as much again to these costs to cover for the altered circumstances.

Q191 ARCHITECT, HULL.—*Can you give me the names of firms producing dovetailed pattern STEEL SHEETING?*

Names and addresses are given in the footnote.*

Q192 CONTRACTORS, SURREY. — *Can you give us the names of firms other than Turners Asbestos Cement Co., Ltd., producing PRESSURE PIPES IN ASBESTOS CEMENT?*

No other firm of manufacturers can be traced and it would appear that the patents of this form of pipe are vested in the company named.

Q193 VARIOUS.—*Inquiries from numerous sources have been received for alternatives to TIMBER for hutments and for private houses, etc.*

A thorough answer to these questions would need to be at least as long as the articles by Godfrey Samuel and Eugenio Faludi which are now appearing in this JOURNAL. For various constructional techniques, inquirers are referred to these articles. Below are notes on the materials available. Cement, aggregates, bricks, terra-cotta blocks and slabs, plaster boards, wood-wool cement slabs, sawdust-cement slabs, reinforced metal lathing, rigid dovetailed bitumen sheeting, bitumen and bituminous sheetings and floor coverings of linoleum, cork carpet and plastic laid cement and jointless floorings are all readily available. In addition, for "priority" work various forms of fibre hardboards, asbestos-cement sheets, protected metal sheetings, dovetailed steel sheetings and pressed metal structural units are obtainable. Concentrating for the moment on hutments—since their construction forms a great drain on our timber supplies—it is easy to visualize alternative methods of construction with concrete foundations and brick or concrete block walls up to the floor level: for the floors, solid concrete can be used on level sites, and, on uneven sites, vibrated concrete beams lightly reinforced and spanning across the walls. The walls above could be hollow of two leaves of brick on edge, or of clay or concrete hollow blocks or of vibrated concrete units spanning the full height from floor to ceiling. Or by using vertical supports at intervals a panel infilling system could be used and constructed of reinforced metal lathing and cement rendering or of dovetailed steel or bitumen sheeting and cement rendering; or reinforced plaster board could be used and the surface tarred and gritted with coloured chippings to give a camouflage effect. The vertical supports need not be of timber. Some years ago there was introduced a form of "nailable steel," consisting of pressed steel units capable of being used structurally, and their pressing was so designed that nails driven into the corrugated joints held tenaciously. Other forms of panel infilling of walls could be done by the use of slabs of wood-wool cement or sawdust-cement mixes. In recent years great improvements have been made in the "mineralizing" of sawdust, and the slabs so formed need not have the disadvantages ordinarily attributed to this combination of materials. Again, the slabs could be cement rendered or tarred and sanded. A flat or "one slope" roof can be substituted for the usual pitch. In eliminating the pitched roof there could be a saving of material. But whether pitched, flat or pent, the use of timber could be to a large extent eliminated. Lightweight pressed steel girders are available and spanning between these could be slabs of lightweight hollow concrete, wood-wool cement or sawdust-cement—with a weatherproof layer on top formed of bituminous felt. Similar construction could be used in the pent roof, but this form of roof is admirably suited for the use of asbestos cement, corrugated iron or protected metal roofings which in themselves are capable of long, unsupported spans. There is no reasonable alternative to timber for doors, but door and window frames are available in pressed metal. With internal finishings generally, partitioning could follow the construction of the outer walling and the wall surfaces internally may be formed as part of the wall construction or by the use of plaster, plasterboard or cement rendering. A rough paint on the ceiling will cover any eccentricities of surface. Floor boarding would be eliminated by the use of cement screedings with or without surfacings of linoleum or various impregnated sheet coverings. Turning to civil building, probably even more important than the restrictions of finance for building projects has been the effect of the timber scarcity. In houses without timber, the ground floor will be of solid concrete and the upper floor and flat roof also of concrete or one of the proprietary fireproof flooring systems. The roof could also be a pent or one slope roof with protected metal or other sheet covering. Metal windows can be used and door frames and architraves in pressed steel. But the doors themselves are a problem. No priority order will be available to requisition wood, so that the only alternatives will be steel plate or very expensive hardwood doors made up by a firm of cabinet makers possessing stocks of hardwoods which normally would be used only as veneers or in good furniture. The skirtings and picture mouldings could be in painted pressed steel, and the floor coverings of tiles, terrazzo, linoleum, cork carpet or cork tiles. Window cills would be finished with tiles, Bakelite or coloured glass. In answer to a common query associated with this question, it is the writer's belief that, for war purposes, alternatives to timber can be found; but whether or not any one body will ever be commissioned to seek them out as part of a nationally planned service is a matter of speculation. To do so would mean, first, the consideration of the materials available, their location, and the quantities in which they are capable of being produced. Second, an assessment of war-time construction likely to be needed in each area—so evolving a balance of supply and demand.

Q194 SURVEYORS, BIRMINGHAM.—*Can you tell us the names of NON-SETTING MASTICS, particularly prepared for pointing of brickwork and window frames?*

Probably the best known non-setting mastics for this purpose are Earls Mastic, Nozzet, Seelastic and Chamberlain, made by the firms whose names are given below.*

*Fdk. Braby & Co., Ltd., 352 Euston Road, London, N.W.1. Jos. Sankey & Sons, Ltd., 168 Regent Street, London, W.1. Messrs. Steel Ceilings, Ltd., Steleonite Works, Hayes, Middlesex. Messrs. Beckett, Laycock and Watkinson, Ltd., Acton Lane, London, N.W.10.

*EARLS MASTIC.—Cement Marketing Co., Ltd., Saxon Works, Coldhams Lane, Cambridge.
NOZZET.—Macartneys, Ltd., Stratton Cottage, Stratton Road, Beaconsfield.
SEELASTIC.—Expandite Products, Ltd., Cunard Road, London, N.W.10.
CHAMBERLAIN. — Chamberlain Weatherstrips, Ltd., 426 Hook Road, Surbiton, Surrey.

IN PARLIAMENT

IN the House of Commons, Mr. Mander asked the Secretary to the Treasury what action it was proposed to take with a view to sharing amongst architects to the widest extent possible such Government work as was now being undertaken, in view of the difficult position in which many architects found themselves through the cessation of private and civil building.

Capt. Crookshank, the Financial Secretary to the Treasury, said he was afraid that the drastic decline in civil building, due to the shortage of certain materials, the rise in costs, uncertainty as to future requirements, and the call on available capital for war purposes, rendered inevitable a corresponding decline in the demand for architects' services, for which the Government building programme could not compensate. The Departments concerned with building had in the aggregate substantially increased the number of architects in their temporary employment, but he was asking them to consider whether there was any way in which they could make a more extended use to the public advantage of the professional talent which was employed.

Sir Thomas Moore asked the Secretary of State for War to what extent architects were employed in connection with plans for the erection of camps and hutments for troops in various parts of the country ; and whether, with a view to improving the quality of the planning and ensuring the maximum efficiency and economy, he would arrange for the increased employment of architectural consultative services.

Mr. Oliver Stanley said that full use was made of architectural assistance in the preparation of the standard designs, and architects were also employed as supervising officers in the erection, whenever necessary.

Royal Sanitary Institute

The subject given for the essays in competition for the Henry Saxon Snell Prize in 1939 was " Improvements in the Construction or Adaptation of Sanitary Appliances." Six essays were received.

The adjudicators were of opinion that none of the essays submitted was of sufficient merit to justify the award, and the Council has, therefore, decided to withhold the prize on this occasion. The Council has decided to award the sum of £10 10s. to Mr. A. V. Pimble of Newcastle, Staffs, and £5 5s. to Mr. F. J. Hedgecock of Addington, South Croydon, in recognition of the care taken by these competitors in preparing their essays and accompanying drawings.

Manufacturers' Items

A new stainless steel known as " Stainweld D " is announced by the Lincoln Electric Co., Ltd., Welwyn Garden City, Herts. " Stainweld D " should be used for arc welding stainless steel of the 25 per cent. chromium, 20 per cent. nickel type.

" Stainweld D " is also used for welding various stainless steels to mild steel and for welding of steels which are air hardening and cannot be heat treated after welding, such as both armour plate and similar steels.

Directions for its use are as follows :

Hold arc length short as possible without choking, or sticking.

In general, preparation of the work and welding procedure is similar to that used in mild steel welding. Surfaces to be welded should be free from all foreign material. Slag should be thoroughly cleaned. Thin sheets should be clamped against a copper backing to maintain alignment, reduce buckling and prevent burning through.

Polarity : Electrode positive (+).

For best results use only enough current to obtain a free-flowing arc and proper fusion to base metal. The following table may be used as a guide :

For vertical and overhead use $\frac{5}{32}$-in. electrode or smaller with currents on lower side of range given.

Electrode Size.	Amperes
$\frac{5}{32}$-in.	30– 70
$\frac{1}{4}$-in.	45– 95
$\frac{5}{16}$-in.	80–135
$\frac{3}{8}$-in.	100–165
$\frac{1}{2}$-in.	140–225

" Stainweld D " is packed in 25-pound containers, and is 11½ in. in length in all sizes listed above.

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Mr. J. F. Allden has resigned from Messrs. Garton and Thorne, Ltd., owing to a change in the firm's policy, brought about entirely by war conditions, and any communications to him should be sent direct to " Copse Meade," Kentish Lane, Hatfield, Herts, or, alternatively, The Constitutional Club, Northumberland Avenue, W.C.2.

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The Cement and Concrete Association state that the following method of concreting Anderson shelters has been used successfully by several local authorities and may be recommended with confidence where site conditions are bad :

(1) Thicknesses : Floor 6 in., walls 4 in. Mix 1 : 2 : 3 by volume. Integral waterproofing and hardening accelerator to be incorporated according to makers' instructions. Aggregates : Fine to be clean, washed sand $\frac{1}{8}$ in. down ; coarse to be clean, impervious ballast or broken stone graded $\frac{1}{8}$ to $\frac{1}{16}$-in. Consistency of mix to be as dry as will permit proper consolidation by hand compaction : a rough test is to take a sample from the barrow and compress it in the hands, when it should not drip water, and should hold together when the hands are unclasped.

(2) Excavate temporary sump and start pump. Sump and shelter must be kept continuously free of water by operating the pump as may be necessary until not less than three hours have elapsed after completion of concreting, or such other period required for hardening to take place according to the quantity of admixture used, and the weather conditions or temperature of the concrete.

(3) Clean out mud, etc., from inside the shelter. If the floor is very soft, spread a layer of rubble, sound ashes free from unburned coal, or any available suitable material of similar nature.

(4) On this sub-base, or on the earth if the sub-base is omitted, spread waterproof building paper, empty cement bags, or several layers of old newspapers. This is to prevent loss of mixing water from the floor concrete when first placed, which would otherwise tend to soak into or be absorbed by the sub-base.

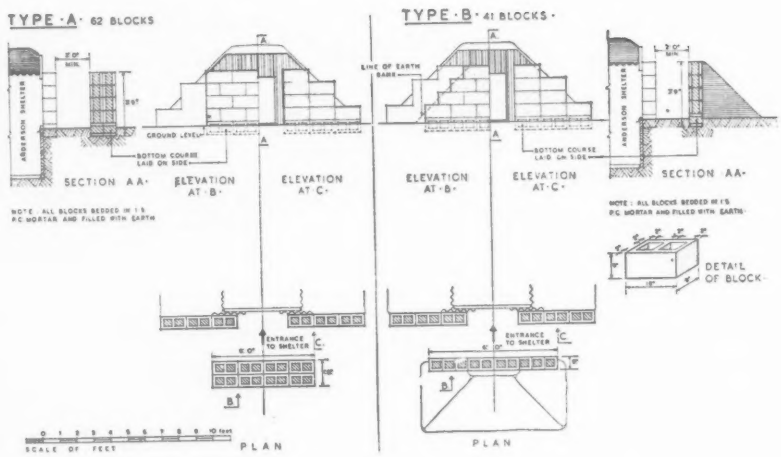
(5) Place in position on the floor a rectangular wooden frame 6 in. deep, made of planks or other available material, of dimensions to leave a 12-in. wide space all round between the frame and the walls and ends of the shelter. Deposit concrete in this space and tamp well with a wooden "punner" having an 8 in. by 12 in. face.

(6) Erect the wall shuttering on the strip of concrete just placed, and deposit the wall concrete, working the first layer (which may be very slightly wetter than the rest) well into the underlying floor concrete by rodding so as to form a sound, well-knit joint. Complete the walls, which for preference should be carried up to just above ground level so as to exclude risk of surface water subsequently overtopping them.

(7) Remove wooden frame and complete the floor concrete, again taking care to compact it solidly and to knit it well to the strip which was placed first. From first to last the whole of the concrete lining should be placed within an hour.

(8) Continue the pumping for not less than three hours. Strike wall shuttering the following day. During winter months condensation inside the shelter will probably provide the desirable damp curing conditions, but in dry weather the concrete should be kept wet for a few days by covering it with wet sacks, or by spraying.

(9) To prevent water dripping through the superstructure, secure the four upper corners of the front and back corrugated sheets to the curved roof sheets with G.I. builders' hooks. Then caulk the joints between all corrugated sheets above ground level with bituminous putty, a rubber-cement compound, or an asbestos-pitch mixture.



Proposed masking walls for Anderson steel shelters suggested by the Cement and Concrete Association.

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Resistance of asphalt and other roofing materials to incendiary bombs and the resistance of glass and certain types of concrete to incendiary bombs and to high explosive were the subjects of films and slides shown to members of the Metropolitan Police, including officials of Scotland Yard, at the Police Station, Lucan Place, Chelsea, on Tuesday, February 20.

The programme was arranged by the Natural Asphalt Mine-Owners and Manufacturers' Council, and the Council's secretary, Mr. G. J. Hancock, supplied a running commentary on the first film showing the resistance of mastic asphalt to thermite bombs.

Mr. J. M. Holt presented a film of tests carried out by Pilkington Brothers at St. Helens, Lancashire, showing that toughened lenses in concrete frames provided complete protection against the percolation of incendiary matter, cracking only on cooling and remaining in position and gas-tight.

Mr. G. H. Hodgson, M.INST.C.E., described and illustrated by slides and film numerous tests at the quarries at Penmaenmawr, North Wales, of concrete made with granite and other aggregates. Exploding an 18-pdr. shell inside a 6-ft. square reinforced concrete shelter, with 9 in. walls and roof, Mr. Hodgson obtained a maximum splinter penetration of only 4½ in. The shelter was also shown to be undamaged, apart from chipping of the arrises, after 230 tons of rock had been blasted so as to fall directly on to it.

The programme concluded with slides

and an account of personal experiences in Barcelona during the Spanish Civil War, by Mr. J. M. D. Hunter, B.SC., lecturer on A.R.P.

Professional or other bodies interested in the subjects covered are invited to arrange with the Natural Asphalt Mine-Owners' and Manufacturers' Council for the presentation of a similar programme.

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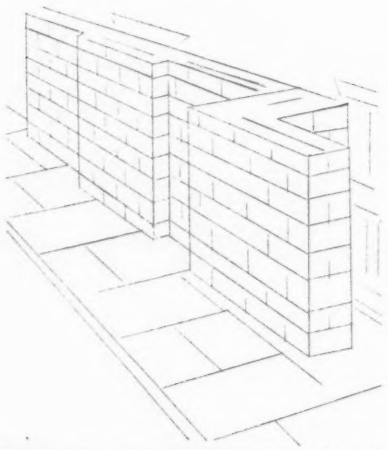
The following details concerning sandbag revetment have been sent to us by the British Construction Co. :

The protection which has been obtained by the use of sandbags is of course good, but can only be considered temporary because (1) the effective life of sandbags has proved to be very short ; (2) sandbags breed insects ; (3) stacked adjacent to a wall they will introduce moisture to the building and cause serious damage to the interior ; (4) the lower bags frequently become damaged and may endanger the pile, thus bringing third-party risks into consideration ; (5) it is practically impossible for the sandbags to be seen in the black-out, thereby constituting serious danger to the unwary, and any person so damaged would no doubt have a good claim at law ; (6) the possibility of bags being interfered with and so causing accidents is also a major point. Such interference may easily occur, particularly in some districts, where sandbags have entirely disappeared.

The answer to these pointers is to have the concrete block baffle walls (see illustration reproduced here), because (1) a concrete block baffle wall is cheaper than sandbags ; (2) concrete is obviously a job to last ; (3) if care is taken in erecting the blocks they may be taken down and used for other purposes after the war ; (4) blocks can be coated white ; (5) sand from the rotted bags can be used in the cavities of the blocks ; (6) the blocks can be built to form walls 9 in., 12 in., 18 in. or 24 in. thick, or a combination of these thicknesses.



Concrete block revetment in place of sandbags. (British Construction Co.)

THE BUILDINGS ILLUSTRATED

HOUSE AT FRITHSDEN COPSE, NEAR BERKHAMSTED (pages 237-241). Architects, Parrott and Dunham. General contractor, Jesse Mead, Ltd. Quantity surveyors, Henry Riley and Son. Sub-contractors and suppliers included : Excel Asphalt Co., asphalt ; Diespeker & Co., Ltd., hollow tile floors and canopies, etc. : G. Tucker and Son, Ltd., facings ; London Brick Co., flettons ; Low, Giddings, Ltd., stone ; Redpath, Brown & Co., Ltd., structural steel ; Colthurst, Symons & Co., Ltd., Bambino roof tiles ; D. Anderson & Co., Ltd., flat roof ; Thermacoust, Ltd., soundproof partitions ; Cork Insulation Co., Ltd., cork tiles ; Runnymede Rubber Co., rubber ; Frank Moody & Co., Ltd., central heating ; Aga Heat, Ltd., cooker ; Shoolbred Electrical Co., Ltd., electric wiring ; Troughton and Young, electric light fixtures ; Dent and Hellyer, Ltd., sanitary fittings ; Yannedis & Co., Ltd., door furniture ; Henry Hope and Sons, Ltd., casements ; Veneercraft, Ltd., flush doors ; Pratt and Sons, Ltd., wrought ironwork ; Jesse Mead, Ltd., joinery ; Bryon & Co., wall tiling and floor ; Conway & Co. and Mathews, vitreous mosaics ; United Water Softeners, Ltd., water-softening plant.

SHOWROOMS AND OFFICES, HAMPSTEAD (page 242). Architect : Courtenay Constantine. General contractors : Sabey and Sons. Sub-contractors and suppliers included Willment Bros., Ltd., demolition ; General Asphalte Co., asphalt ; Diespeker & Co., Ltd., reinforced concrete and terrazzo ; Hy. J. Greenham (1929), Ltd., facing bricks ; Dawnays, Ltd., structural steel ; Roberts Adlard & Co., Ltd., tiles ; Garton and Thorne, Ltd., metal partitions and metalwork ; Mellowes & Co., patent glazing and casements ; Marbolith Flooring Co., Ltd., patent flooring ; Heating Installations, Ltd., central heating ; Duncan Watson Electrical Engineers, Ltd., electric wiring ; Pontifex and Emanuel, Ltd., sanitary fittings ; Yannedis & Co., Ltd., door furniture ; Reliance Telephones, Ltd., telephones ; Shutter Contractors, Ltd., fireproof doors ; Haywards, Ltd., iron staircases and sliding doors ; F. J. Barnes, Ltd., stonework ; Walter W. Jenkins & Co., Ltd., marble ; Evans Lifts, Ltd., lifts.