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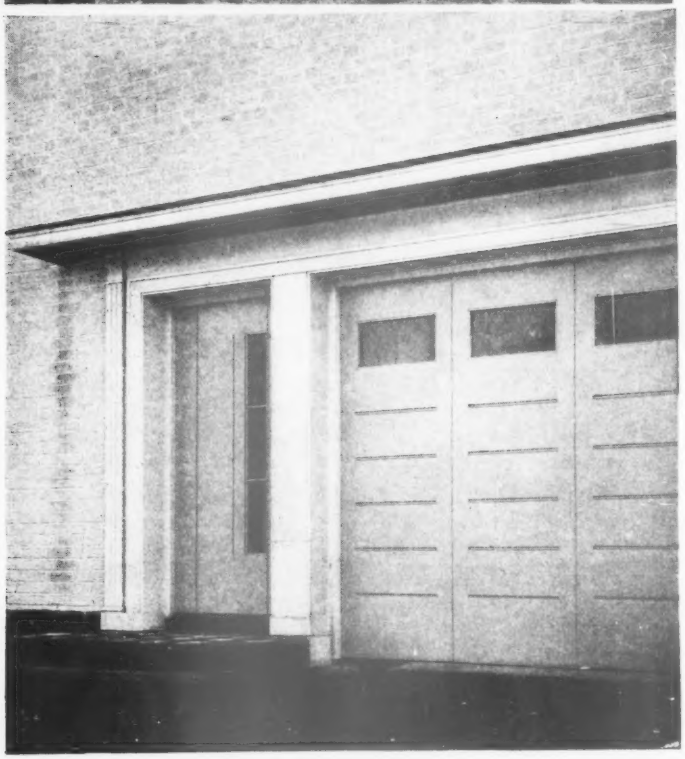
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, June 3, 1937. NUMBER 2211 : VOLUME 85

PRINCIPAL CONTENTS

A house at Rottingdean



Very well fitted internally both as regards plumbing and fitments, this attractive little house cost just a fraction under 1/2d. per foot cube—a very moderate cost indeed for a house giving such adequate facilities for easy living.

An important contribution towards the low cost is the use of "Phorpres" Rustic Facing Bricks for all the external walls.

PHORPRES
(four times pressed)

Architect: Elie Mayorcas, A.R.I.B.A.

Contractor: Jack Edgerton.

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C

NEW GUILDHALL, CAMBRIDGE

THE FIRST SECTION, NEARING COMPLETION

THE first section of the new Guildhall, at the corner of Market Hill and Peas Hill. It will house the police and sessions courts, and is being erected from the designs of C. Cowles-Voysey. Part of the old Guildhall is shown on the left of the photograph.

ST. BRIDE'S, FLEET STREET

For many years the only portion of St. Bride's Church, E.C., which has been visible from Fleet Street has been the spire. The demolition of the old offices of the Press Association and Reuter's to make way for their new headquarters now offers from Fleet Street a temporary view of almost the whole structure.

THE FUTURE

Mr. R. C. Fisher: Twenty years ago I suppose the majority of members of the Institute were in private practice, but now we all know that between 60 and 70 per cent. are actually official architects or salaried architects. . . .

The President (later): Before I ask you to vote, there is one matter which has been mentioned on which, I think, the statement made requires a little qualification. I refer to the percentage of those in salaried employment as against those in private practice. I do not believe there are any such figures in existence. I do not know whether you have any authority for the percentage which you gave, Mr. Fisher?

Mr. Fisher: I have not any authority, but I think that if the figures are not in existence it is high time that they should be. (Laughter.)

THIS quotation from the proceedings at the Special General Meeting held at the R.I.B.A. to consider revisions of its Constitution is worth attention.

On this page last week we stated that the coincidence of a new reign and a new Constitution might justify the members of the R.I.B.A. in indulging in some stocktaking—in trying to decide whether, through their Institute, they were doing the best they could for themselves. And it was then submitted that while its narrower purposes were being excellently fulfilled the R.I.B.A. was showing signs of failure in its wider purposes.

The chief of these latter is the R.I.B.A.'s duty to look ahead, to notice where old demands for architectural services are failing and new demands are arising and thereafter, bluntly, to tip the wink to its members, if not to the public. To this duty the extract we have quoted is particularly relevant.

It shows that if the R.I.B.A. were to forecast future architectural conditions with considerable accuracy its chances of using its knowledge for its members' benefit would be gravely jeopardised. For it does not even know how its members are arranged to fulfil the architectural opportunities of today. When the central organization of the R.I.B.A. is being overhauled it would seem somewhat foolish to neglect such a weakness. During the next twenty years, when political and social developments are going to affect architects very closely, they will need to be very much on the alert. And if a Public Relations Committee exists to put architects before the public concerning contemporary events, it might seem more than advisable to have a Special Public Relations Committee to put forthcoming events before architects.

This is no fanciful suggestion. The JOURNAL believes that such a Committee could do most valuable service; for even today there are tendencies in the livelihood of an architect which ought to be emphasized to younger members.

There is the tendency towards co-operation and amalgamation which follows the larger scale and higher speed of most architectural projects; there are the vast architectural possibilities of the movement to create new specially planned industrial areas; there is the tendency for all public authorities and private companies with a continuing need for architectural services to maintain an architects' department of their own; and there is the unceasing warning of modern practice that architecture is no longer a one-man, though it may be a one-name, job—that only those private firms in which the work is sub-divided with mutual respect amongst several collaborators are doing really well.

And over all these tendencies there is for architects the necessity of encouraging some of their ablest members to become town planners as well as architects if the private architect is to survive at all. Lack of town planning in the past, and shrinking, restrictive use of powers gradually acquired, have made it certain that when town planning does become constructive it will be compelled to work on a huge scale. If architects have prepared themselves in time, the leadership in such schemes will belong to architect-town planners and their execution to firms collaborating under their direction. If they do not prepare themselves they may well find in the future that their social influence has been gravely reduced.

The JOURNAL maintains that the aggregate results of these changes will be such that a special committee of the Institute, strengthened from bodies like P.E.P. and B.I.N.C., whose business it is to look ahead, should be charged with preparing R.I.B.A. members to meet them.

For such a purpose an accurate analysis of present R.I.B.A. membership would be a first necessity. In Mr. R. C. Fisher's words "if the figures are not in existence it is high time that they should be"; and the JOURNAL does not believe that a single member would object to a Census if the Institute stressed its importance.

From this starting point the committee could look ahead for members individually and for the Institute. It could advise architects beginning practice and, more importantly, those applying for salaried appointments; it could, and should, lead rather than assent to attempts to stabilize building volumes and, if defeated, warn its members in good time. More widely, it could undertake two special tasks. It could and should make sure that in any new social ventures—whether trading estates, better schools or land settlement—the R.I.B.A.'s co-operation is offered and that it has made itself felt as an effective progressive organization before the first three letters have appeared in *The Times*. And each year it could, and must, encourage by liberal scholarships a selected few of its students to study town planning and to enter upon it as a career. For in 30 years it may be only town planners who will be able to be architects in the really grand manner.

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NOTES & TOPICS

SENSIBLE FURNISHING

THE Council for Art and Industry is, I see, holding an exhibition at the Building Centre of various flats furnished for not more than £50 and of others graduated to suit various incomes. I write before the opening but I hope Mr. Yerbury was co-opted as adviser; for Mr. Yerbury at the 1931 Ideal Home Exhibition produced a completely furnished flat for only a fraction over £100. And very good it was, too—much more in keeping with the show, I thought, than the "Rooms of the Architects" which all, with the exception of Mr. C. H. James's quiet little entrance hall, looked too expensive.

*

And the winning designs for the Lathom Park Mental Hospital competition are to be on show as well, though these latter not till next Monday—then for a fortnight.

RETURN MATCH

Last week saw the A.A. darts team pay a return visit to Queen Anne's Gate, when the home team, overcome by such a galaxy of distinguished visitors, were defeated by eleven matches to six. Apart from a superficial flesh wound inflicted by the A.A. president upon the A.A. lady warden, the match was conducted in a spirit of marked friendliness consistent with the highest ideals of architectural sport.

*

Shortly after midnight Mr. Malcolm Anderson, armed with a syphon of soda, was observed descending the main staircase in a somewhat wet condition. Traces of him were found as low as the first floor, but no further, and it is thought that he may still be somewhere in the building.

*

At any rate, his hat was there next morning.

ANOTHER WEMBLEY?

Glasgow has just sent me some advance publicity on Scotland's 1938 Empire Exhibition, which is to be held in Bellahouston Park from May to October. One hundred and seventy acres of it, with the usual Palaces of Industry, Engineering and the rest, and twenty-four acres of amusement park.

*

Now a good deal of effort has been made to give the whole show a good working layout, and, in the Palace of Engineering at least, the exhibits themselves are to be grouped into various trades. The 16-page Exhibitors' Handbook has plenty of plans and "artists' impressions" of what the various buildings will look like. There is a whole page of impressive names on the Council of Management and the Administrative Committee.

*

Not one single mention can I find of the fact that the architect responsible for the whole thing is Mr. Thomas S. Tait.

BROADWAY, WORCS

I really do apologize for referring once again to Coronation decoration, but I have at last discovered a good design. Broadway, like Brighton Pier and Boulter's Lock, is not a place to go to at the week-end—too many Bugattis and shorts—but circumstances took me there on Saturday, and I was not sorry, for Broadway had achieved a brilliant scheme of decoration.

*

In the close-clipped grass that lines the village street, at fairly wide intervals, were flagstaffs not more than 20 ft. high with big flags occupying a third of the staff. The short poles preserved admirably the scale of the cottages and retired prima donnas' "dower houses," and the flags were still clean in the Cotswold air. There were no decorations at all on the houses, and this gave much more sense of contrast between the bright colours of the flags and the golden stone.

*

Of course, one feels that a real village should have its flutter of Woolworth bunting, but Broadway is not a real village and, in the event, the result was so good that one suspected the benevolent autocracy of the Russells. I recently came across the G.O.M. of the Russell family in a little matter of local preservation, and could not help but admire his rather extraordinary career. To turn the village pub into an important factor in the arts and crafts movement is something of an achievement.

*

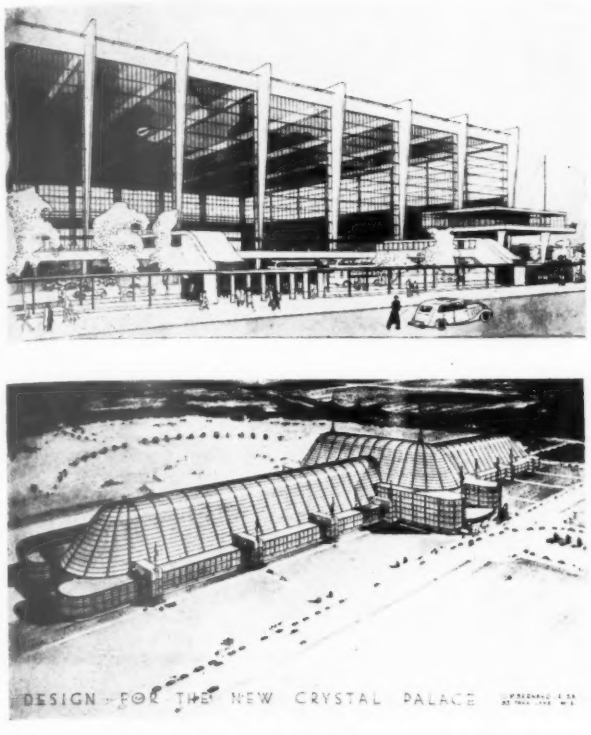
I suppose it was back in the good days of TEAS that some chance cyclist, "discovering" Broadway, turned into the little Lygon Arms and made Mr. Russell an offer for a piece of his old furniture—and so to make a long story short we have Mr. Jellicoe in Wigmore Street.

SELFRIDGE MYSTERY

It was from a most authoritative source that I obtained the information as to the sale of the great Oxford Street spectacle to an Indian prince. The deal, however, may have fallen through, for the papers now give me to understand that the decorations are still going for £15,000, or presumably near offer, to anybody who can offer them a good home. A good home means . . . what?

DUTCH AFTERMATH

To my amazement, and even a little to my amusement, a casual remark which I made last week concerning the Oxford Group has brought me a shoal of letters, all full of, I suspect, rather surprised enthusiasm that I should be



Perspectives of designs for a new Crystal Palace referred to by Astragal. Top, E. Maxwell Fry's scheme; below, Oliver P. Bernard's.

putting my shoulder to such a momentous wheel. I see myself in a new and unexpected light, and can only hope that my correspondents will not be disappointed in me.

*

One of my correspondents tells me that the Group is invading the building trades, and that it is to contemporary religion what the modern movement is to architecture—Buchman and Corbusier clasp spiritual hands across the sea. I am grateful for, and honoured by, an invitation to the Group dinner to the building industry this week, not yet held as I write, but over when this is printed.

CHARLES LAUGHTON AT THE A.A.

It is a good many years now since I worked side by side with L. P. Williams, and it was, therefore, with peculiar pleasure that I listened to him talking about "Designing for the Films." Mr. Williams always did remind me of something half-way between Tom Walls and a Prussian cavalry officer, and the mixture seems to make good art directors—flair and a knowledge of what's what being the first essentials.

*

When Mr. Williams had told us something of the rather dirty, if ingenious, tricks which are played on us by cameramen, he was followed by Arthur Wimperis, so distinguished and so comic, who, as he himself told us, wrote the script for the "Private Life of Henry Laughton," and who thought that the cinema was more often associated with designing women than designing sets.

*

Mr. Laughton I had not seen in the flesh (and what a lot of flesh) since I chatted to him in the foyer at Stratford at the time when bluff Harry's stubble was just beginning to sprout—it was, I think, about four days old. Mr. Laughton told the A.A. of his days on the "Bounty" and of how they used an hydraulic engine to make the ship rock. What a really glorious voice he has got—I always look upon the Gettysburg speech in "Ruggles of Red Gap" as the high spot of his career—and how bright it was of someone at the A.A. to get him to speak; I mean, after all, it might have been Mr. Arliss.

IN PAXTON'S FOOTSTEPS

The Crystal Palace, whether one thinks of it as an architectural symbol or a peculiarly British institution, half museum and half fun fair, is not dead yet. Perhaps we will never have another; but Messrs. Pilkington have felt that at least we ought to show that, technically, we are worthy of having another.

*

They have asked three architects to prepare schemes for a Crystal Palace of 1937. Two of them, by Messrs. Maxwell Fry and Oliver P. Bernard, are illustrated here. Mr. Raymond McGrath's appears on a later page.

*

It would be nice to show ourselves that we can still rise to an occasion; but I fear we will have to wait for *the* occasion before there will be a chance of defeating opposition to another "white elephant" at Sydenham.

BURFORD AND THE R.A.F.

I returned from Broadway by way of Burford. On the glorious hill above the town the R.A.F. hangars are growing and growing and growing. I mentioned this particular aerodrome some weeks ago, but as nobody seemed in the least disturbed I thought you would like to know that it is getting on nicely, thank you.

CABINET CHANGES AND THE CHAMBERLAINS

This is no place to discuss the political implications of the Cabinet changes, however much I might feel tempted to do so, and apart from the new Minister of Transport they are not of much architectural importance. Of the Prime Minister himself there is little to say here—Mr. Baldwin, with Mary Webb and the pigs in the background, always kept up some show of interest in rural preservation (like Dizzy's waistcoats and Joe's orchid it was his stock-in-trade)—but where Neville and our profession are likely to find contact it is difficult to see.

*

Living as I once did more or less in his shadow I have happy memories of "Radical Joe." Although he had ceased to be radical by the time we met he was always very charming to the little boy whom he saw so often as he rode round his constituency on a white horse with his trousers strapped under his boots.

*

It is a curious story that starts with the Republican screwmaker and ends with his Conservative son—so efficient, perhaps more efficient than human. However, the end is not yet, and as I go to press one feels that Neville may find Almeria and Guernica, not to mention Merthyr Tydfil, harder nuts to crack than ever were Pretoria or Kimberley.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

IMPROVING DURHAM

The South-West Durham Improvement Association has been formed by the Commissioner for the Special Areas of England and Wales to promote development, improve the appearance of the region by the removal of derelict buildings, and to take other steps to solve the social problems involved.

SAVING TOWN AND COAST

Pleas for the saving of beautiful houses and squares and the preservation of the coastline were made last week at the annual meeting of the C.P.R.E. at the R.I.B.A.

Mr. Hore-Belisha compared the destruction of old houses and squares to "the slashing of the picture of a Master." He referred also to the Ministry's concern that, in the building of new roads, architectural and natural beauty should be respected and fostered.

Professor Patrick Abercrombie pleaded for the saving of the English coast from the threat of development.

THE ARCHITECTS' DIARY

Thursday, June 3

ROYAL ACADEMY EXHIBITION, *Burlington House, W.1. Until August 7.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Exhibition of Work, including Sketches, Set Stills and Working Drawings, by Film Art Directors in various parts of the World. Until June 12.*

LEAD INDUSTRIES DEVELOPMENT COUNCIL. *At the L.C.C. School of Building, Ferndale Road, Brixton, S.W. "Recent Developments in Lead." By H. C. Harris. 7.45 p.m.*

BUILDING CENTRE, 158 *New Bond Street, W.1. Exhibition of Working-Class Furniture and Household Equipment. Organized by the Council for Art and Industry. Until the end of the month.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. Exhibition of Objects and Prints illustrating some of the achievements of the Society since its foundation in 1754. Until Saturday, June 5.*

Friday, June 4

ROYAL INCORPORATION OF ARCHITECTS IN SCOTLAND. *Annual Convention at St. Andrews. Also June 5.*

Monday, June 7

BUILDING CENTRE, 158 *New Bond Street, W.1. Exhibition of the premiated designs in the competitions for the new mental hospital and new mental deficiency institution, Lathom Park. Until June 19.*

Tuesday, June 8

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C. "Architects' Part in Passive Air Raid Defence." By Eric L. Bird. 8.30 p.m.*

BRITISH STANDARDS INSTITUTION. *Annual General Meeting at the Dorchester Hotel, to be followed by Luncheon at 1 p.m.*

Wednesday, June 9

WORSHIPFUL COMPANY OF CARPENTERS, *Carpenters' Hall, E.C. "Roof Construction." By Martin S. Briggs. 7.30 p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *Fifth Summer Conference. At Glasgow. Until June 11.*

RENT RESTRICTIONS ACTS

The Minister of Health and the Secretary of State for Scotland have appointed:—Councillor Arthur W. Brady, Mr. Humphrey R. Brand, Captain V. A. Cazalet, M.P., Mr. R. N. Duke, Mr. C. Gerald Eve, Sir Francis Fremantle, M.P., Mr. H. H. George, Mr. Duncan M. Graham, M.P., Mr. D. S. MacDiarmid (Sheriff-Substitute of Lanarkshire), Alderman Sir Miles E. Mitchell, Mr. F. Montague, M.P., Lord Ridley, Judge Sir Mordaunt Snagge, Mrs. M. C. Tate, M.P., and Mr. H. Graham White, M.P., to be a Committee to inquire into and report upon the present working of the Rent Restrictions Acts and to advise what steps should be taken to continue or terminate or amend these Acts.

Lord Ridley has been appointed Chairman to the Committee, and Miss E. M. R. Russell-Smith, of the Ministry of Health, Secretary. All communications should be addressed to the Secretary at the Ministry of Health, Whitehall.

CHARTERED SURVEYORS' INSTITUTION

Mr. Robert Cobb, of Rochester, has been elected president of the Chartered Surveyors' Institution, in succession to Mr. John M. Theobald.

BUILDING IN PARIS

The official opening of the International Exhibition in Paris by the President of the Republic, took place on May 24, but it is doubtful whether the British pavilion, designed by Mr. Oliver Hill, will be completed in time to be opened by the Lord Mayor of London, when he goes to Paris on June 15.

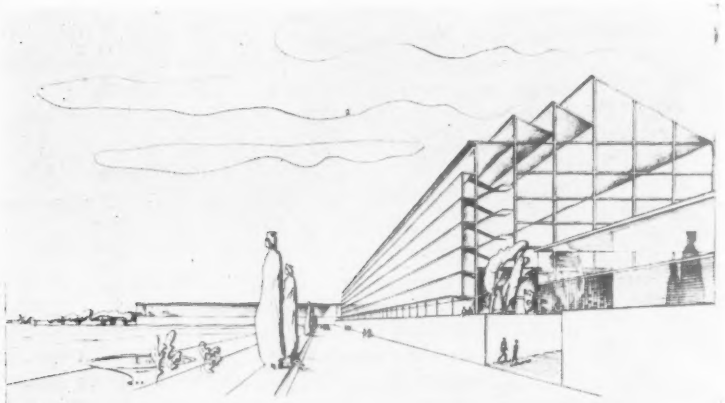
Some information explaining the reasons for the extraordinary delay in the building of this Exhibition, in spite of the fact that it was started two years ago, is given in various newspapers in Alsace. The Alsatian press is extremely outspoken, and has revealed that on April 14, a fortnight before the date on which it was originally proposed to open the Exhibition, the contract for the building of the Alsatian pavilion had not even been signed. In the part of the Exhibition set aside for the pavilions representing the various French provinces, the place of Alsace was marked only by a muddy hole. There was not a workman, not a joist, not a plank on the site.

When the Alsatian Committee, composed of some of the most outstanding business men in the recovered province, complained, one of the directors of the Exhibition replied: "We are short of workmen. We are especially short of carpenters." He raised his arms to the heavens with a gesture of powerlessness.

Accordingly, the Alsatian Committee decided to send twenty carpenters from the Rhine province to Paris. As soon as these Alsatian workmen arrived on the site, the principal French trade union organisation, the C.G.T., commenced a campagin against the Alsatian workmen, who were forced to return home. In despair, the Committee arranged to send workmen from Picardy, but they met with the same opposition. Under such circumstances, the Alsatian pavilion, like the British pavilion, will not be ready until towards the end of June at the earliest.

CONGRESS OF SOVIET ARCHITECTS

The First All-Union Congress of Soviet Architects is to be held in Moscow on June 15 next. In connection with the Congress an exhibition of architecture and building materials will be held. The congress will be attended by some 450 delegates, elected by the various branches of the Union of Architects of the U.S.S.R., which has a total membership of 4,500.



Perspective of one of the three schemes prepared for a new Crystal Palace. This scheme is by Raymond McGrath. See page 941.

Invitations have been extended to architects of foreign countries, and representatives are expected from Great Britain, France, Czechoslovakia, Poland and the United States.

R.I.A.S. ARCHITECTURAL AWARDS

The awards in the "quarterly" essay competition of the Royal Incorporation of Architects in Scotland are as follows :

First prize of £15—Sidney W. Birnage, Glasgow School of Architecture.

Second prize of £5—Miss Agnes F. Johnston, Kirkintilloch.

ANNOUNCEMENTS

The firm of Bayes and Bishop, of 6 Pownall Gardens, Hounslow, and 44 Great Russell Street, W.C.1, has been dissolved by mutual consent as from May 29, 1937. Mr. Bishop will continue this practice as H. Lowden Bishop, P.A.S.I., M.R.SAN.I., Chartered Surveyor and Registered Architect, from the same Hounslow address. Mr. Kenneth Bayes, A.R.I.B.A., will practise from 44 Great Russell Street.

Messrs. R. T. James and Partners, Chartered Civil Engineers, have removed their offices to No. 6 Lower Grosvenor Place, S.W.1. Telephone Nos. : Victoria 8673/4 and Victoria 8066.

EXHIBITIONS

[*BY D. COSENS*]

Probably there has seldom been a more interesting collection of Renoir's paintings than there is at the moment at Rosenberg and Helft's in aid of the Contemporary Art Society. For not only does this exhibition consist of excellently chosen and important examples of his work, dating from 1868 and the beginning of impressionism right up to 1916, nearly at the end of his life, but it is made up entirely of pictures lent by private owners. Nearly all come from collections in France, few have been exhibited before, at any rate within most people's memory, or, with one or two exceptions, ever in this country. It gives what is probably an opportunity in a lifetime of seeing some of Renoir's less well known masterpieces, for though some of them have from time to time been illustrated, and may be familiar, no one can know Renoir's work—or that of any of the impressionists—from reproductions or without their colour.

To name only a few, some of the outstanding examples at this exhibition are "Le Poirier d'Angleterre" painted in 1868 which must have been revolutionary at that date, the magnificent "Fillette à l'Ombrelle" which has not been shown for more than 30 years, the lovely balanced pastel drawing "Femme Nue," "La Village d'Essoyes" in which Renoir uses with such effect the diagonal slope of the roofs and the windy clouds, and perhaps above all "L'Arbre près de la Ferme" which he painted towards the end of his life and in which he marvellously captures the hot mid-day sunlight of the Riviera.

Of Renoir's development as a painter, of how he became less absorbed with technique and more with colour and the solidity of form, of his life and his achievements, all that is known has been written many times — Meier-Graefe's "Auguste Renoir," published in 1912, still gives one of the best interpretations of his painting.

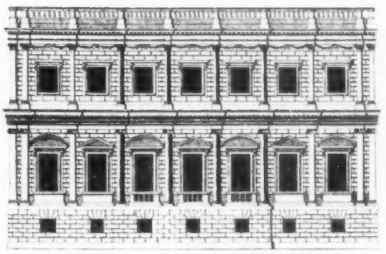
•

There is a good collection of French and English paintings at the Leicester Galleries. Perhaps none of them can be said to be the very best by any particular artist, but they are all interesting and important works, and very well worth seeing. Boudin's "Port de Bordeaux" is very lovely, though some may prefer his freer rendering in "Camaret." There is "Pont Marie" by Guillaumin, that relatively unknown but extremely good painter of the Monet-Pissarro group, a Modigliani portrait, Duncan Grant's design for a decorative panel, and three Sickerts which are of interest together for "Rachel" is a good example of his best Venetian period, while 10 and 11 illustrate the different and very distinctive manners of his Bath and Camden Town work. But the gem of the exhibition is Vuillard's "Interieur" with its low and lovely colouring, and the subdued, filtered quality of the light.

Renoir. Loan Exhibition in Aid of the Contemporary Art Society. Rosenberg and Helft's, 31 Bruton Street, W.1. Until June 12.

A Collection of French and English Paintings. The Leicester Galleries. Until June 16.

A perspective of the new headquarters for the staff of the Anglo-American Corporation of South Africa, Ltd., in Johannesburg. The exterior of the building will be entirely faced with Ficksburg stone, which is a South African freestone similar in colour to Bath stone in this country, the base of the building being in South African granite. The architect is Francis Lorne, of Sir John Burnet, Tait and Lorne.



SO WHAT?

[By John Gloag]

FRIENDSHIP between England and America and the interchange of ideas between the two English-speaking peoples are facilitated by three things. One : the nourishing stream of slang that flows like the Gulf Stream from the North American Continent to our shores. Two : the backgrounds that Hollywood devises for the films we see. Three : The popularity of the modern substitute for folk-lore, created by Walt Disney, one of the great men of the world. There is a publication called, "Mickey Mouse Weekly." All those animated creatures, Donald Duck, Mickey, Minnie and Pluto, race through a series of fantastic adventures every week ; enabling English and American children to share a common environment of fantasy.

These influences are, because of the bond of language, more potent factors in contemporary life than the technique of thinking that has been imported from Europe by eager and sincere people who are trying to remould England nearer to the modernists' desire. That technique of thinking has not yet been acceptably translated. Continental logic appeals only to a small number of people. It is distrusted by most Englishmen. America has succeeded in humanizing and, of course, vulgarizing many European ideas ; but people in England absorb American ideas ; they *pay* to see them ; they are taken on board unconsciously as part of the movie background, and as part of the technique of running a modern house or flat. The labour-saving movement originated in servantless America.

The process of Americanization in its more superficial aspects should not be overlooked by any architect who is concerned in presenting work that is fit for English people to live with. It is well to remember that a Mickey-Mouse-trained generation is growing up that will think more easily and kindly about America, and with greater familiarity, than any previous generation of Englishmen.

We must remember, too, that many of our bright young modernists are now verging upon middle-age. Are they going to be a lot of chromium-plated Peter Pans, or—but this provokes a

potent question: At what age do creative ideas become "set"? Obviously some people's ideas are set at 20; others begin to set at 70. Some people become fossilized; some become mellow; but I wonder whether the ideology of the modernists, which is based upon economic and social science, will become just as tiresomely out-of-date as the ideology of older generations of architects, which was based upon artistic appreciation and a scholarly knowledge of style.

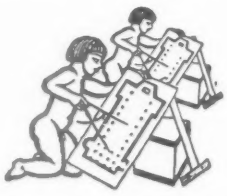
But whether architects are putting their specialized expert knowledge upon an artistic or a quasi-scientific plinth there is the danger that they may grow out-of-date with the public. The public regards the architect as the specialist. The public consists partly of what the Left Wing people call: "The Workers"; and the Right Wing people call: "The Working Classes." Another part of the public is what the Left Wingers call: "Petty Bourgeois"; and the Right Wingers (though not so loudly): "The Middle Classes." Then there are the governing classes. According to the Left, these people know nothing; according to the Right, they know everything.

But do any of these sections of the public really appreciate the architect? Remember, they are all susceptible to the invasions that come shouting across the Atlantic; they are all taking part quite willingly in the Americanization of their taste; and there is nothing in that process which tends to make them at all receptive of the burning logic that drives the modern movement along with its revivalist shouts of: "Salvation through function! Praise concrete and save architecture!" But because as a nation we have adopted a lot of American idioms both of speech and thought, we are far from being like America. The English are more resistant to ideas, far more repelled by any attempt at forcible education, than are Americans; and if the practitioners of what is called the modern movement in design wish to avoid being a disappointment to their country and their century, they should regard the English character as *the* vitally important piece of research work which should be tackled. The peculiarities of that national character cannot be dismissed as a mere assortment of prejudices. There must be some deep-seated convictions about architecture in the English mind, otherwise England would never have acquired the sort of buildings which occupy most residential areas. A reasonably convenient plan, which makes for separation and a degree of privacy inside the house; a sickly romantic exterior; an urge which is met, lamely enough, for individual distinction in appearance—all these inarticulate longings have been met by the speculative builder who has to-day produced the vernacular architecture of England. It is easy to foster wilful misunderstanding of the need for anglicizing the modern movement; but it is well to examine the emotions which provoke the continuous opposition to the forms created by practitioners of that movement. I do not pretend to know how the modern movement can be anglicised; but I should imagine that the first step might be to forget continental standards of comfort and to concentrate upon those which are acceptable to English people.

For example, we like fresh air; we also like at appropriate times the good old English custom of a fog; we like open fires; we do not like enormous spaces of window which betray to the outside world the inner secrets of our domestic life; and we don't always enjoy communal arrangements for eating. It should be recognised that although the English climate does not suffer from extremes, it demands continuous access to some comfortable refuge, and that to design a house that makes the most of the few bright days of summer is not enough. Houses should be designed for November, February and March, the dank, cheerless months that depress the soul and try the body hard; when the East wind, occasionally veering round to the North, sets the teeth on edge, although we are inclined to bless it when first it appears because it drives away the fog. It is because the modernist technique of thinking is too coldly reasonable for the highly moral and highly muddled thinking that makes England such a perplexingly comfortable place to live in, that we find active resistance to modernism side by side with passive acceptance of Americanism.

The humorous side of the situation is that until after the war, Europe, and particularly England, had the quaint idea that everything modern necessarily originated in America. So what?

COMPETITION NEWS



THE BELFAST COMPETITION

The Conditions Reviewed

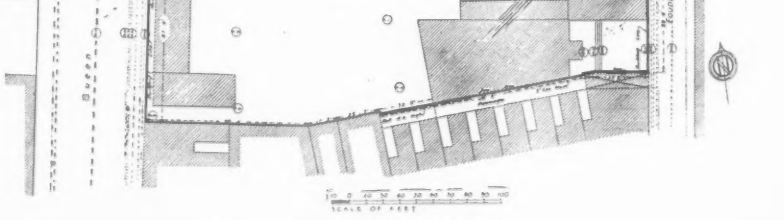
Buildings required: Offices and Workshops.
Competition open to Architects resident in Great Britain and Northern Ireland.
Assessor: Mr. Austen Hall, 37 Norfolk Street, W.C.2.
Premiums: £300, £200, £100.
Cost: £90,000.
Questions: Last day was May 31, 1937.
Sending-in date: July 31, 1937.
Deposit: One guinea.
Conditions, etc., are obtainable from the Secretary and Registrar, Water Offices, Belfast.

THE site is practically level; is bounded by Queen Street on the West, Fountain Street on the East, adjoining properties on the North, having windows overlooking the site, and residential and other properties on the South (the former having windows overlooking the site).

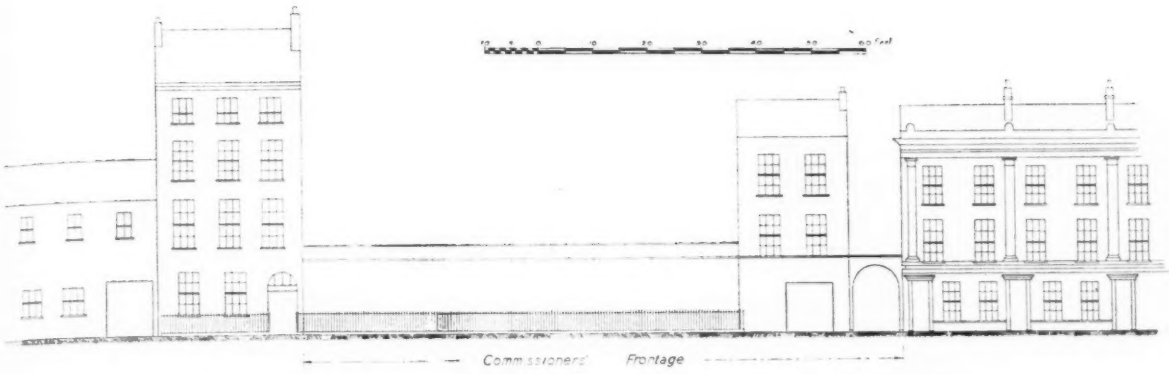
For the purposes of the Competition, rights of light to adjoining properties may be ignored; but a good angle of light to the new buildings, which may be set back, is required.

It is the intention of the Commissioners to pull down all the existing buildings upon the site, but the cost of this work is not to be included.

The frontage to Queen Street is 87 ft. long at ground level, and 109 ft. above, i.e. a new road is to be provided along the North boundary connecting Queen Street and Fountain Street, and this



SITE PLAN



The Belfast Competition: Elevation to Queen Street showing adjoining buildings.

road may be built over on this frontage.

The frontage to Fountain Street is 59 ft. at the ground level, and 84 ft. above.

There are no adjoining buildings of any importance that need to be taken into account.

The new road, clearing site, architect's fees, clerk of works' salary and furnishing are not to be included.

REQUIREMENTS

The main entrance to the new offices is to be in Queen Street; any secondary entrances required can be from the new road.

Internal walls adaptable, so far as possible, to meet changing conditions.

Some space for further extension is required.

"The elevations may be designed in any way competitors may consider suitable." It is probable that competitors will be guided more by what they think the assessor will consider suitable; but in any case some effort to make the new buildings take their place in conjunction with the buildings now existing on the North and South, should obviously be made. Particularly is this so with regard to that on the North, which consists of four floors and is not so bad as it might be; indeed if the two windows and the door on the ground floor had been kept a little to the left, it would be quite a good sound piece of domestic work.

DRAWINGS REQUIRED

It is quite refreshing in these days to read: "Drawings may be in ink or pencil, coloured or tinted as the competitor may prefer, but simple drawings that illustrate the scheme clearly are all that are required."

And again: "No ½-in. detail is required." One would have preferred the word "permitted" instead.

"Elevation to Queen Street to one-eighth inch scale." This is quite as it should be.

ACCOMMODATION

The usual accommodation for board-room, etc., secretary, typewriting, engineer, accountant, rate collectors, with a public office of 2,000 ft. sup., inspectors with a public office of 2,500 ft. sup., general, including strong room, telephone exchange, enquiry office, store 700 ft. sup., kitchen and mess-room for messengers.

Lavatories for chief officers, members of the board, clerks, messengers, lady typists, etc., with cloak rooms.

One passenger lift, cleaner's stores on each floor, telephones, caretaker's flat, on top floor, heating chamber, ventilating plant, switch room, meter room, store, etc., in basement.

No rooms used by staff to be in basement.

Workshops, 2,000 ft. sup.; office, 700 ft. sup.; stamping fittings, 2,000 ft. sup.; office and store 700 ft. sup. Convenient access to workshops for vans and carts is required from a yard, which should be as large as possible and partly covered by a glass roof.

SUMMARY OF ACCOMMODATION

	ft. super.	
Board room	2,460	First floor.
Secretary	2,230	First floor.
Typists	560	First floor.
Engineer	2,960	First and second floors.
Accountant	2,500	Ground floor.
Rate collectors	2,200	Ground floor.
Inspectors	2,500	Ground floor.
General	1,350	—
Workshops	5,400	Separate building.

The sizes of rooms given are considered to be the minimum, and should not be reduced.

This competition will be won on the planning of the various departments, and on the skill shown in internal communications, lighting, and in making the utmost use of the site, which is 296 feet 9 inches deep.

The conditions leave practically everything to the discretion of individual competitors, and there are no annoying restrictions as to presentation; moreover the amount of work asked for in the drawings to be submitted is the least that it could be.

It seems a pity that the Irish Free State architects are ruled out, and that the many able men in Dublin will not be represented in this important competition.

H. T. W.

COMPETITION RESULT

Mr. W. T. Benslyn, F.R.I.B.A., the assessor of the competition for a central health clinic for the Bilston Corporation has announced his award as follows:—

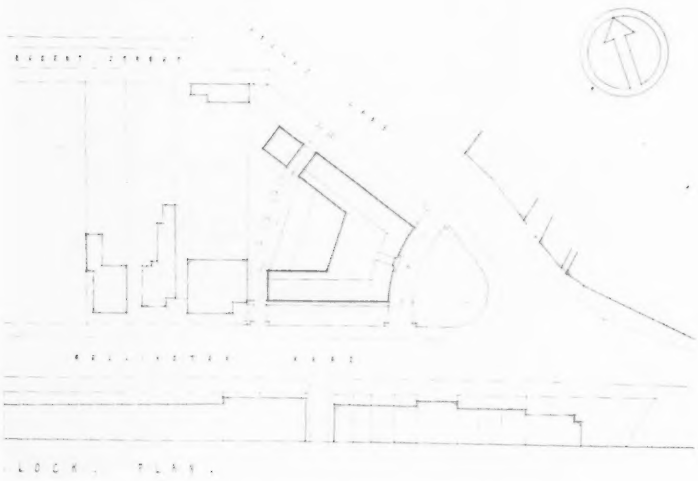
Design placed first (£40): Messrs. E. D. Lyons, L. Israel and C. H. Elsom, of 3 Paul's Bakehouse Court, London, E.C.4.

Design placed second (£35): Messrs. Wesley Dougill and E. A. Ferriby, of 127 Chatham Street, Liverpool.

Design placed third (£25): Messrs. C. G. Percy and A. R. Young, of Dudley.

The competition was open to architects in England and Wales. The designs placed first and second are illustrated on the following four pages.

COMPETITION FOR CENTRAL HEALTH



THE WINNERS' REPORT

PLANNING

The scheme is neat and workable, presenting a simple open plan, essential to a building of this nature. The placing of the building on the site provides easy access from all directions. The approach road constructed at the rear prevents the infringement of the lighting of the internal rooms of the clinic from any possible building development on the adjoining properties, and gives separate approach for perambulators from all streets.

The main entrance has been placed at the most logical position, namely, on the axial line of the junction of Proud's Lane and Wellington Road, arrived at by a path linking these thoroughfares. The lawns surrounding the buildings and the gardens at the rear provide ideal surroundings to the building and preserves the principal ideals of good town planning.

The placing of the caretaker's house at the north-west corner of the site complete the composition of the scheme, and places the secondary entrances under complete observation. All external entrances communicate and can be controlled from the main waiting hall, which forms the focal point of the building. Surrounding this room are the various departments of the clinic, and the waiting patients have immediate access to the respective surgeries.

The waiting hall overlooks and communicates with a large courtyard, which, in addition to providing a pleasant outlook and preserving the openness of the planning, allows the perambulator shelter to be under complete control and observation from the inside of the clinic.

The surgeries have been arranged so that, if necessary, a screen could be placed to divide the waiting hall to allow separate waiting accommodation for school children and infants; a scheme frequently adopted in welfare clinics.

Provision has been made for a possible future extension of this clinic, by allowing for building in the courtyard adjoining the waiting hall. This will provide additional surgeries, with direct access for the waiting patients without interfering with the existing clinic rooms.

PLANNING OF SURGERIES

Ante natal. A separate external access has been provided to the ante natal waiting-room This room contains two dressing cubicles and a separate lavatory. The ante natal room which communicates with this waiting room is adjacent to and can be entered from the doctor's room.

The doctor's room is provided with a private lavatory. In addition to having access to the ante natal room, it communicates with the weighing room from a private waiting-room. The weighing room is entered and controlled from the waiting hall.

The minor ailments room has been placed near the toddlers' lavatory and the ultra violet ray room. All these surgeries, in addition to the spare room, are entered by the patients from the waiting hall.

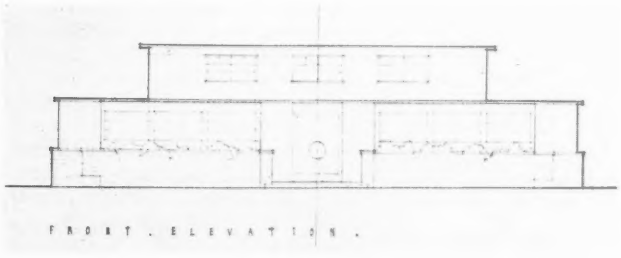
Adjoining the entrance lobby is the patients' lavatory, which is controlled and accessible from the waiting room.

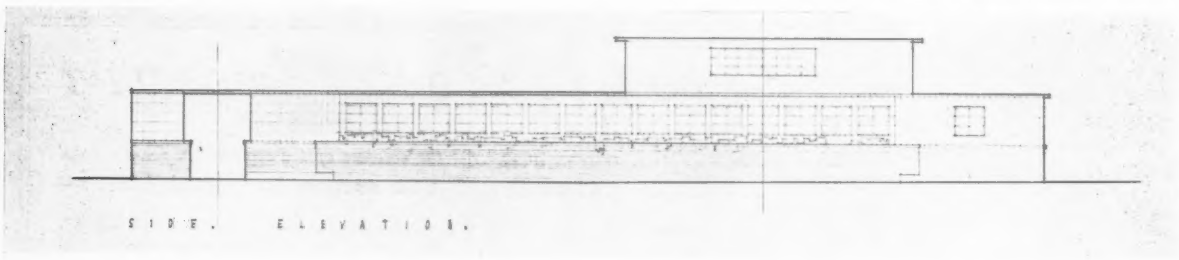
The ophthalmic surgery is of the specified length of 20 ft., and has a small dark room adjoining. Waiting patients can enter this room from the main hall.

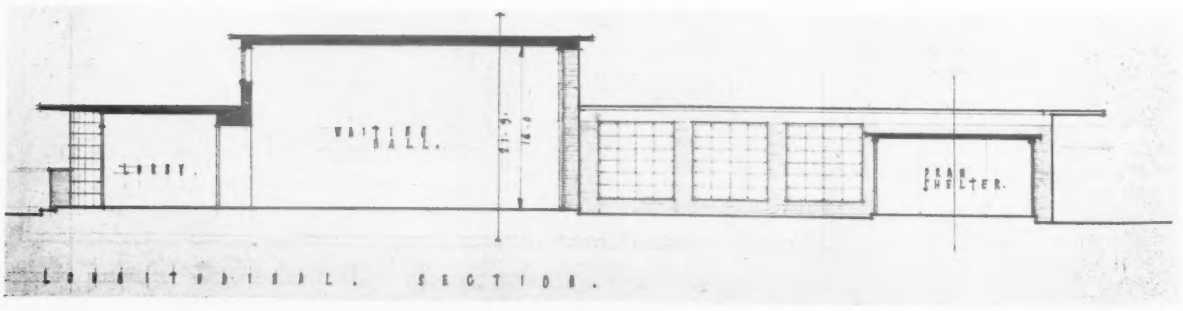
The food store, food sales, kitchen and clerical are all adjoining and under single supervision. Direct service for teas and the sale of food is provided to the patients from the waiting hall.

The dentist's room gives direct access to waiting patients; the recovery room adjoining the surgery allows patients after receiving treatment to leave the building without passing through the main waiting hall.

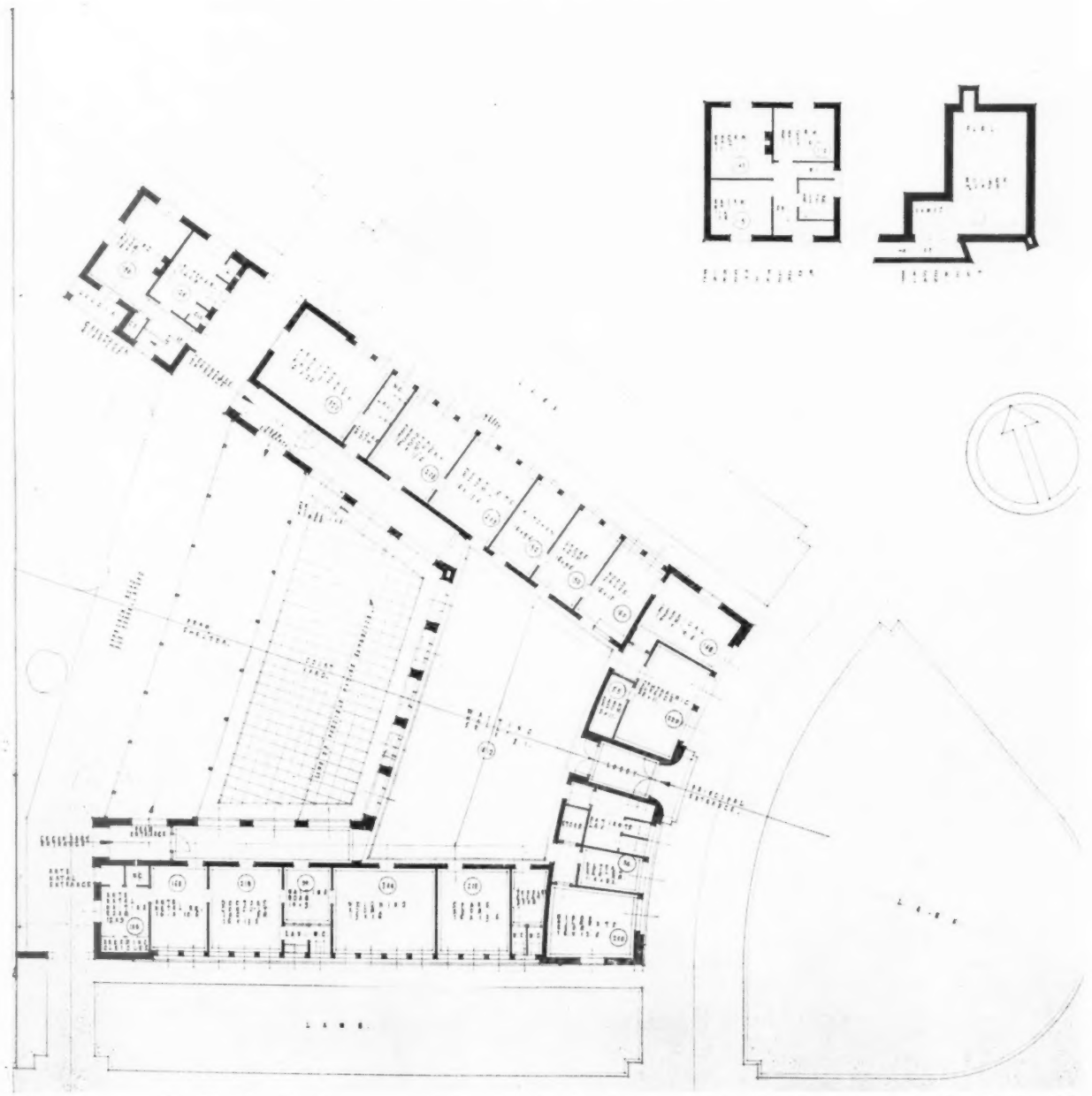
The health visitors and staff room is conveniently placed away from the surgeries of the clinic, in order to prevent disturbing the circulation and preserve privacy. This room has the advantage of separate external access.







CLINIC, BILSTON: DESIGN PLACED FIRST



BY LYONS, ISRAEL AND ELSOM

CONSTRUCTION

The external walls will be built of brick to statutory thickness in hydrolized lime mortar erected on concrete foundations. All damp-proof courses will be of asphalt. Cavity walls will be ventilated with terra-cotta air bricks. The roof to be constructed of painted fir joists and deal boarding treated with solignum (covered with boards to receive asphalt laid to falls on a felt underlay. All wood roof will be ventilated with metal vents in soffite of over-hanging cornice.

The ground floor will be of concrete reinforced with B.R.C. fabric on hardcore, finished with cement screed. All eaves gutters to be of cast iron. The perambulator shelter to be constructed of oak uprights supporting a roof constructed of fir joists, deal boarded, screeded to receive asphalt laid to falls on a felt underlay.

The walls of the shelter to be formed of close mesh wire grilles in metal frames painted.

The approach road and paths, etc., surrounding the building to be tarmac laid on hardcore foundation. Curbs to flower beds, lawns, etc., to be of brick.

ELEVATIONS

The elevations have been designed to avoid elaborate and unnecessary ornament, relying on good selection of materials and correct proportion. The external walls will be of selected hand-made facing bricks, flush pointed with recesses to receive flower boxes at cill level. The windows will be in metal of the hopper type of construction.

The reveals and walls of the windows above the cill level of the ground floor will be faced with turquoise blue faience tiles. The soffite of the overhanging wood cornice will be cement rendered and painted.

INTERNAL FINISHING

Walls. The walls to all the clinic rooms, corridors, etc., to be in Keene's plaster, painted. The walls to waiting hall to have a cork dado 4 ft. 6 ins. high; above this level the walls will be of sound-absorbent wall boards. The walls to lavatories and kitchen will be of Keene's cement above a 4 ft. tile dado.

Ceilings. The ceilings will generally be of Kaline plaster on an insulating fibre board.

Floors. All floors will be of linoleum on cement screed, except the lavatories and kitchen, which will be of quarry tiles.

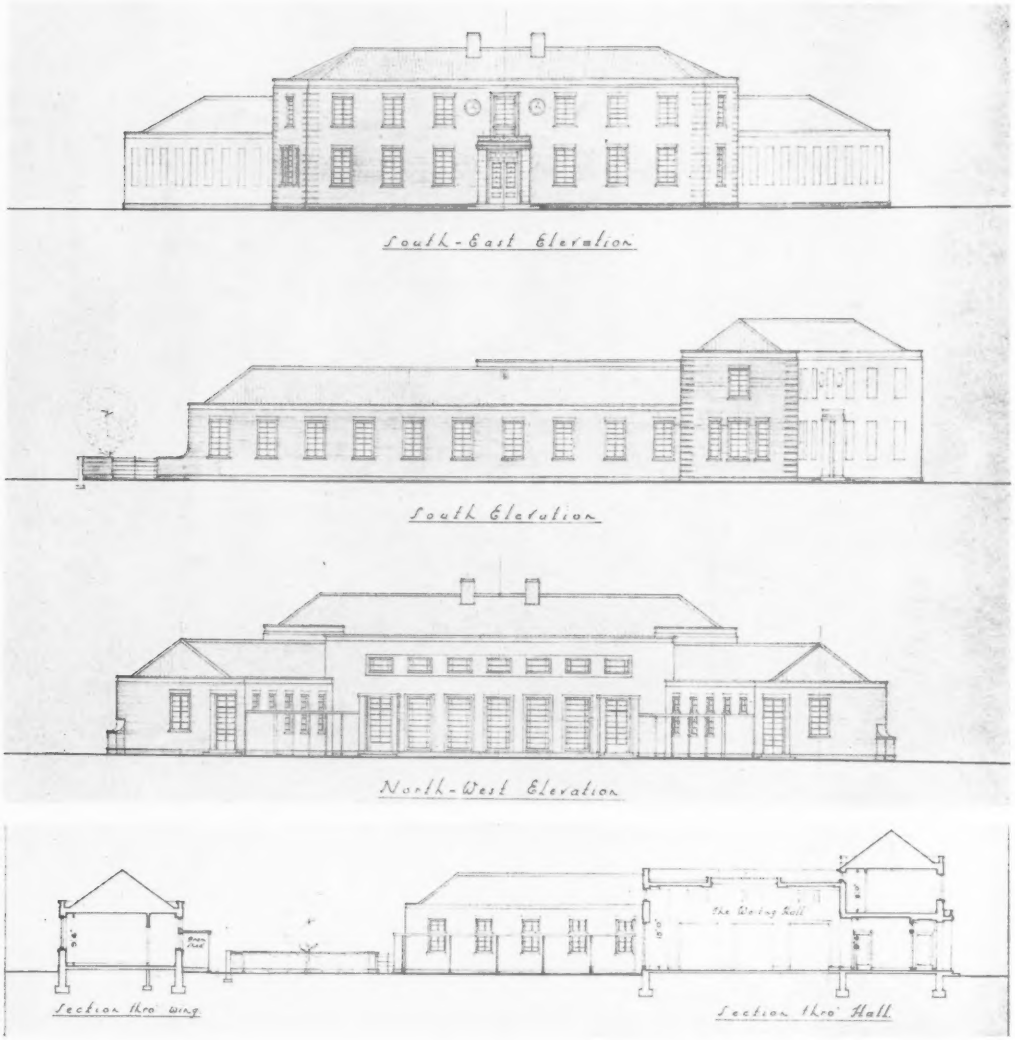
Services and heating will be of the low-pressure system with automatic fuel feed, with a pump to assist circulation.

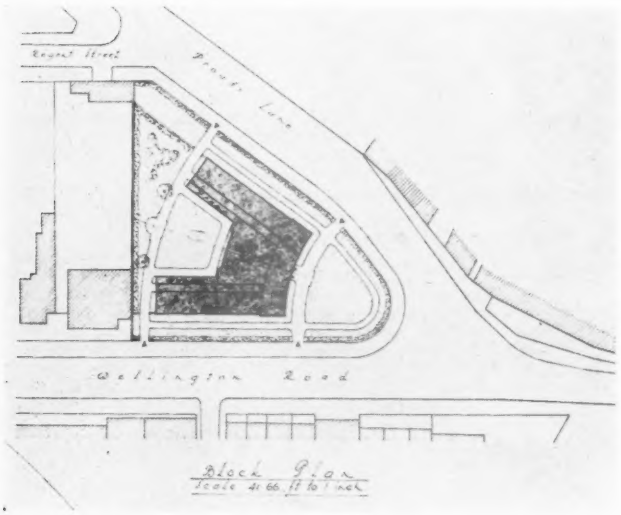
ESTIMATE OF COST

Front Block.

	£
Side wings, corridors and boiler house, 81,957 cu. ft. at 1s. 3d.	5,118
Hall, 37,300 cu. ft. at 1s.	1,865
House, 14,332 cu. ft. at 1s. 1d. ..	780
Pram shelter	250
	8,013
Cost of paths, gardens, road, etc. ..	600

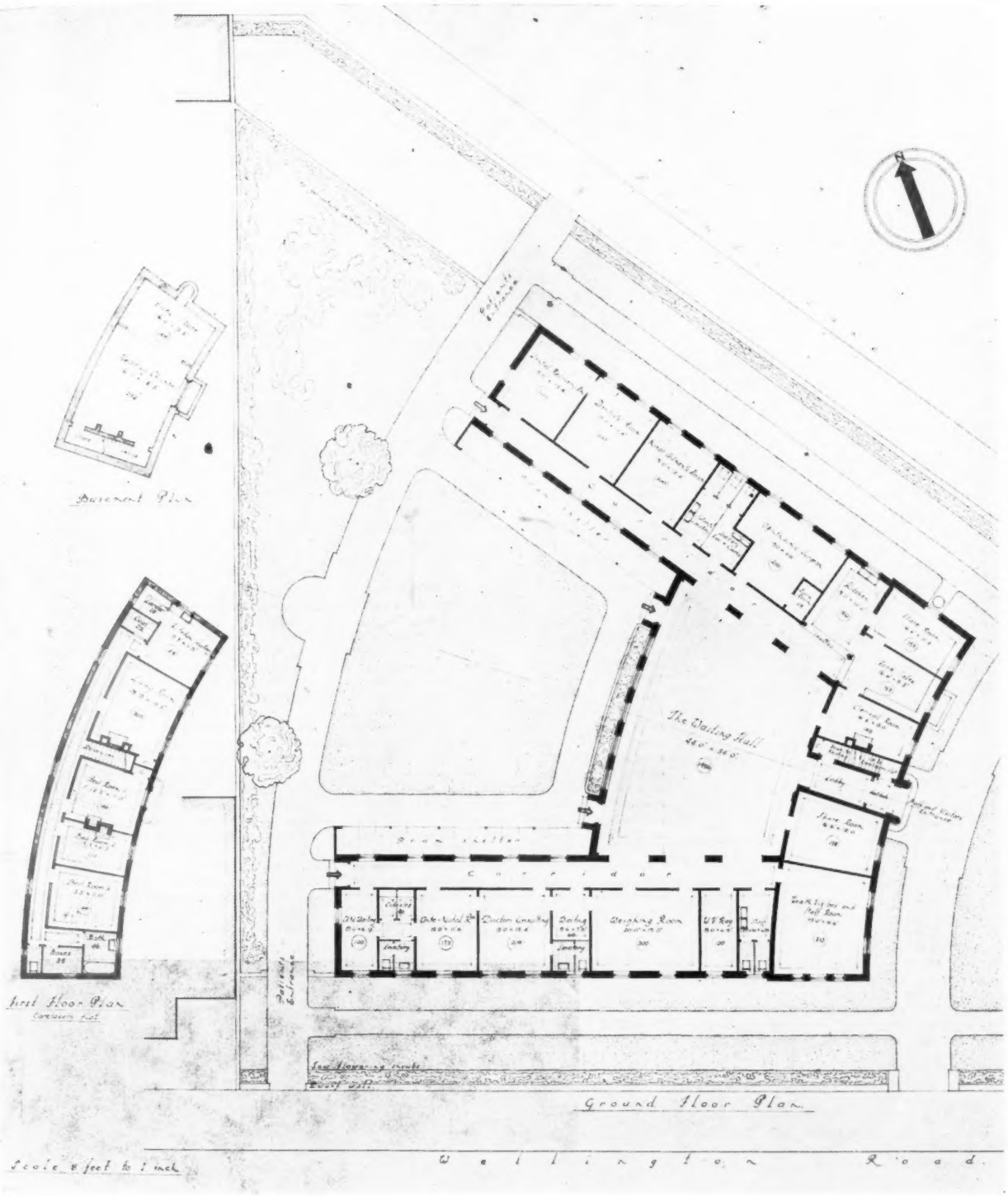
COMPETITION FOR CENTRAL HEALTH





Design placed second: above, south-east elevation, south elevation, north-west elevation and sections through wing and hall; left, block plan.

CLINIC, BILSTON: DESIGN PLACED SECOND



BY WESLEY DOUGILL

AND E. A. FERRIBY

Basement, ground and first floor plans of the design placed second.

ARCHITECTURAL ASSOCIATION

At last week's meeting of the Architectural Association the names of the Officers and Council for the session 1937–1938 were announced as follows: President, Mr. L. H. Bucknell, F.R.I.B.A.; vice-presidents, Messrs. Charles H. Holden, F.R.I.B.A., and Verner O. Rees, F.R.I.B.A.; hon. secretary, Mr. S. E. Dykes-Bower, A.R.I.B.A., A.A.DIPL.; hon. treasurer, Mr. Joseph Hill, F.R.I.B.A.; hon. Editor *A.A. Journal*, Mr. J. Murray Easton, F.R.I.B.A.; and hon. librarian, Mr. S. Rowland Pierce, A.R.I.B.A. Ordinary Members of Council: Messrs. Henry Braddock, A.R.I.B.A., A.A. DIPL.; H. P. Crallan, A.R.I.B.A., A.A.DIPL.; Joseph Emberton, F.R.I.B.A.; R. E. Enthoven, F.R.I.B.A., A.A.DIPL.; R. C. Erith, A.R.I.B.A., A.A.DIPL.; H. H. Goldsmith, A.R.I.B.A.; A. W. Kenyon, F.R.I.B.A.; R. H. Sheppard, A.R.I.B.A., A.A.DIPL.; B. P. Westwood, A.R.I.B.A., A.A.DIPL., and Major V. H. Seymer, A.R.I.B.A., A.A.DIPL.

An address entitled "Designing for the Films" was given by Mr. L. P. Williams, A.R.I.B.A., A.A.DIPL. (Chief Art Director, Herbert Wilcox Productions, Ltd., Consulting Art Director to Pinewood Studios, Ltd.).

In the earlier part Mr. Williams traced the development of the film industry in this country. Coming to the present time he said :—

"Nowadays, we have an art department working and organized on the lines of an architect's office, numbering among its permanent staff architectural draughtsmen, quantity surveyors, sculptors and painters and including a comprehensive reference and periodical library, an architectural model making department and printing plant. The probable introduction in the near future of colour and stereoscopy will no doubt add to the number of experts and incidentally to the worries of the art director. It is, however, my opinion that when colour is firmly established it will be found principally in the costumes of the artists and be very sparingly used in the background. Up till now it is most unusual, in this country at any rate, for the art director to be consulted on the design and colour of the costumes to be worn in his sets. I somehow feel that this omission in organization must be repaired on the general introduction of colour, or the results will be disastrous.

The composition of the modern art department consists, firstly, of the supervising art director who is responsible for its organization, discipline and the direction of its policy. In the ordinary course of events, depending upon the size of the company employing him and the importance of the subject being made, he will not personally art direct individual films; this work will be carried out by the unit art director under his supervision.

Each unit art director has his personal assistant who, with the help of one or more draughtsmen, depending upon the urgency of the subject, is responsible for the production of working drawings from the unit art director's sketches. The various shops, sculptors and decorative artists are also supplied with full-size details from this source.

The floor manager is responsible, under the supervising art director, for contact between the art department and the various construction shops, such as those of the carpenters, plasterers painters, etc., and also for a most importan duty, that of placing each set upon the stage in such a way that the progress of the production unit from one set to another may not be delayed by what they have already shot being in the way, or prevent the erection of future sets to a schedule that has been worked out some weeks in advance.

This very necessary piece of organization is carried out in the following way: Individual art departments select a suitable scale to which all sets are drawn in plan and elevation. Up till a short time ago we favoured half-inch, as this seemed a suitable scale for most sets to be drawn on a double elephant board, and I thought that a lot of full-sizing was eliminated by this scale. We have, however, adopted quarter-inch scale of late with a saving of time.

Plans of the various stages and lots are then drawn on Essex board or other suitable material, tracings of each set are made on detail paper and pinned over these plan boards in the position they are to take in the studio. When the time comes for the set to be struck its plan is removed from the board and a new set placed upon its site. It will be readily seen that studio space available and general progress on the stages can be gauged at a glance in this way.

Much skill and ingenuity is often necessary to fulfil a "shooting" schedule supplied by the production department in such a way that each set is erected and dressed ready in its correct sequence and not to prevent the "shooting" of one set by the awkward placing of another in too close proximity to it on the stage.

The art director's duties should begin directly the adaptation for the screen of the selected subject is begun. It has always been my experience that much money can be saved and fewer hearts broken in the long run, if the practical possibilities in reference to what can and what cannot be erected within the shooting schedule, the amount of stage space available and the financial budget are discussed between the script writer, the director and the art director before the script is finally written. Upon the art director receiving his script the organization must vary according to the organization of his department, but it will be roughly that the supervising art director, if not personally designing the film will, after preliminary discussions with the producer, hand the script to a unit art director who will read it through with the director, meanwhile making marginal notes and rough sketch plans of the action and particular requirements of the director regarding special action, and at the same time discussing fully the characters in the story, in order that they may eventually seem to inhabit naturally the surroundings the art director will create for them.

He will then produce a series of sketches to show to the director as a guide to the layout and atmosphere he proposes. The number of sketches prepared will vary with the type of picture in preparation, from one for each set for the ordinary programme picture, to one for each master scene in the carefully prepared "super." The medium in which these sketches may be prepared extends to any known methods of painting or draughtsmanship, but the most economical for the quick and broad effects required by the art director is to my mind compressed charcoal on tracing paper, which may eventually be mounted on millboard for more effective preservation and durability.

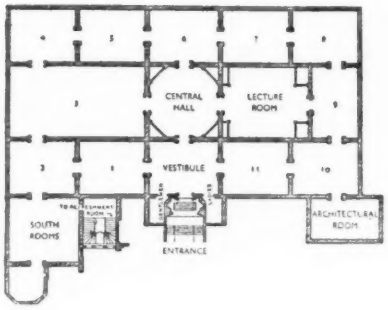
The importance to the art director of selecting the medium most suitable for quickly presenting his ideas cannot be overlooked, for time is usually short in the preparation stage and it is heart-breaking to have one's laboriously produced sketches turned down wholesale by the director.

In the design and planning of film sets great care must be given to the study of action. By this I mean that sets must be so designed that the action in the script can be carried out smoothly and crisply, with as little waste of time in unnecessary action on the part of the artists as possible. For instance, should Uncle Joe, whilst sitting by the fireside with Auntie, hear a shot outside, the window to which he is to rush to discover the source of this unusual sound should be conveniently placed for his movements, and not at the other end of the set with tables, chairs and other furniture in the way to impede his progress.

More usually the commercial art director will find himself engaged upon one of two very different kinds of pictures, namely, drama or comedy; and in each case his functions are very different from what they are in the other. In the former he must help the story by augmenting the action by his compositions in light and shade, and in the latter his duties lead him to provide a pleasantly inconspicuously background which will not distract the audience's attention from the actors in the foreground. There are, of course, many degrees of both comedy and drama, and the way in which the art director tackles his subject will be dictated by its exact nature.

Once the sketch that has been prepared has been passed by the director, the art director, if himself an architect, will prepare rough quarter-inch scale plans and elevations of each set: from these, estimates are got by comparing them with the known cost of sets of similar size and decoration in previous pictures. Once these estimates have been seen and passed by the production manager, the art director and his assistants must curb any desire to over-embroider by putting in extra detail whilst the drawings are in the final working drawing state or in the shops. Of course this estimating business, important as it is, does not work out too easily. Sometimes there have been no sets of a similar nature on which to base one's estimate; or if there are, the sets have been built by the day shift at single time, whereas the set on which one might now be engaged, owing to some hitch in the production schedule, will be built at double time on Sunday, and with plaster and timber at an advanced rate. Again, the director may be so pleased or, on the other hand, so upset with the set you have finally provided, that his fertile imagination will invent all sorts of additional improvements. All of these contingencies must be met as they arrive. I have a system whereby each set has a card similar to those used in card-indexing on which each contingency is entered. When used in conjunction with the drawings of the various sets to which they relate, a quick estimate of future sets is likely to be much more accurate than it would be without them.

Flats and garages. By Leathart and Granger. Perspective by Lawrence Wright. See article on facing page.



SALON DES REFUSÉS

An architectural hang-over resulting from the 1937 Royal Academy, and a gallery of certain eminent, but rejected, works submitted to this year's Architectural Section.

[*BY R. MYERSCOUGH-WALKER*]

"I hope to show that ours is a regularly taught profession; that it is scientific as well as poetic."

I SWEAR, in both senses of the word, that on the frontispiece of this year's R.A. catalogue is printed this quotation *re* Art. John Constable, who was responsible for the remark, has never been so —— really ! I feel he will turn in his grave; for never were the sciences so ignored as at Burlington House.

The writing of this article may cause me a great deal of pain (*a*) because it will be regarded primarily as an attack on the Royal Academy, and (*b*) it will involve being personal about well-known people who are, as you may know, notoriously sensitive about the wisdom of their choice. To avoid the Editor's red pencil, therefore, and libellous statements regarding the titled ones I am working to a synopsis which runs :—

(1) Personal Explanation ; (2) R.A. Infancy ; (3) Theory of Selection ; (4) R.A. 1937 ; (5) Necessary Amendments ; (6) Gossip.

* * *

" Personal Explanation " involves myself since I had one portrait, one landscape and one black and white drawing rejected, together with a number of perspectives, and now put myself, therefore, in the position of being accused of sour grapes. You must believe me when I deny this. The Academy over a number of years has been reasonably kind to me and, indeed, have hung one large drawing well this year, so there is little to be gained by the destructive comments of offended vanity.

Further explanations. If this article is illustrated with any perspectives of my own then I shall be accused of achieving publicity even out of failure. Which, seriously, you could not blame me for, but which is untrue for the simple reason that it is only possible to collect a series of rejected drawings from architects with whom you are personally acquainted and who, after informing you of their fate, are willing to let the work be published. Intending exhibitors are apt to keep rejections a dark, dark secret and my work in collecting such works is, therefore, difficult.

In this respect, I have asked Farey, Harvey, Walcot, Wright and Suddaby to inform me of any rejected perspectives of their own and, after collecting them, the selection I will leave to the Editor.

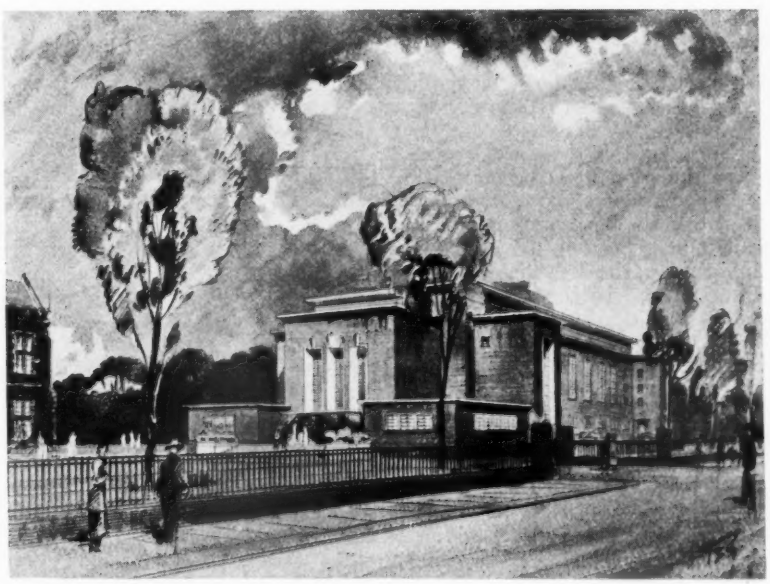
* * *

Now the basis of sound article writing was once explained to me in this way. The first paragraph should plunge the reader immediately into the subject—the body of the article should enlarge on the subject and the concluding paragraph should echo the literary sense of the opening.

Instead of which I propose to steal like a tom-cat through the garden, up the wall and leap into the dustbin. You may interpret this metaphor in whatever manner you choose and I will give you a lead by stating that the garden is the early Royal Academy which was founded by Sir William Chambers in 1768 who, as architect to George III, represented the intermediary between His Majesty and the first President, Sir Joshua Reynolds.

The first Exhibition in 1769 contained 136 works in all (three less than the number of drawings in this year's Architectural room), seven of which were architectural drawings and four of which were the work of Sir William Chambers. It is obvious then that, although the Art of Architecture formed a minority of the group, greater emphasis could easily have been obtained by Sir William. It is equally clear, then, that the eighteenth century was sufficiently ordered to realize that the street was Architecture's exhibition ground and that the minor Arts (dependent almost solely on being employed by architects) were free to fling their weight over the salons of Burlington House or rather Pall Mall at that time.

The growth of the easel picture, the studio work of the sculptor, the individualism of more recent psychology and, finally, the machine, have split asunder these pleasant eighteenth-century ideas and, so far as the R.A. is concerned, the scheme is succeeded by an Exhibition which houses 1,582 works, each bent on individual expression and almost entirely forgetful of the Industrial Revolution, while 139 of these works are architectural subjects selected by a group of men who neither relate themselves to the other Arts nor do they have any affinity with the machine. In short, we have 1,582 examples of one or another of the



Church in Ireland. By John MacGeagh and Edward Maufe. Perspective by J. D. M. Harvey.

crafts and, as such, we must accept the Royal Academy.

* * *

Now in discussing this august Institution I am well aware that the members are perfectly within their rights to choose such works as they deem appropriate and, if the *avant garde* of the Arts is considered debatable as a possible permanent entry into the field of the Arts then it is right that the gate should be closed in order that the pioneers may try their experiments elsewhere, preferably not under Royal Patronage. In painting, sculpture and engraving this is possible and the London Galleries represent a fairly catholic selection, but this dear battered hag we call the Mother of the Arts must, of necessity, be represented by the Royal Academy or not at all. The R.I.B.A. cannot do the job and such groups as the one called "Mars" represent, not a reflection of the whole profession, but a facet of advanced thought. Rather like the Dartington Hall as being thought indicative of the English school system.

Further; it is, perhaps unfortunately, important that such a representative exhibition be held because that small room at the Royal Academy represents an incalculable sum of money being spent on building and (besides being a lead to the public) looms important in the eyes of clients, committees, architects and certain, apparently nomadic, members of the clergy.

Also, it is better that the exhibition be withdrawn altogether rather than that the bulk of the work at present exhibited have the effect of retarding the inevitable contemporary movement in architecture and resulting, as such an effect does, in every progressive architect having to explain at great length to his clients why the Renaissance is not applicable today.

* * *

Selection, of course, is the basis of the matter and the cause of this writing is the result of the selectors' choice—not, I hasten to add, of this particular year but of the most recent years of the Academy which concern us.

The principle of selection is that two architect members of the R.A.—one a full member, the other an associate—both nominated by the Council, select the works and deposit them around the room. One selector retires leaving the other to hang the works and reject such as lack of hanging space will not allow of being exhibited. Last year Sir Edwin Cooper, together with a member whose name I have forgotten, performed this job; and this year Professor Albert Edward Richardson and Sir Edwin Landseer Lutyens, K.C.I.E., were responsible for the selection, the latter being responsible for the hanging.

Now, personal attack is a thing I do not indulge in unless some principle

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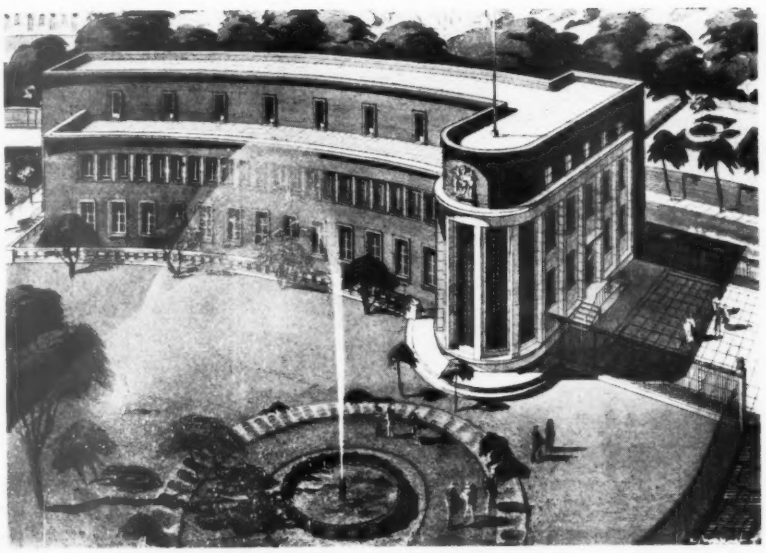


5

6

1 : New English Girls' College, Alexandria. By G. Grey Wornum. (Perspective by Philip G. Freeman.) 2 : House at Stanmore. By Gerald Lacoste. (Perspective by R. Myerscough-Walker.) 3 : Flats at Regent's Park. By Robert Atkinson. (Perspective by Cyril Farey.) 4 : The Repertory Theatre, Oxford. By Edward Maufe. (Perspective by J. D. M. Harvey.) 5 : Metropolitan Water Board Building. By Stanley Hall and Easton and Robertson. (Perspective by R. Myerscough-Walker.) 6 : Royal Mineral Water Hospital, Bath. By Adams, Holden and Pearson and A. J. Taylor. (Perspective by R. Myerscough-Walker.)

which is more important than the person is involved, and so far as this year's work is concerned your opinion regarding the selectors' choice must be dictated, not by my remarks, but by your own views of the accepted works (which have been reviewed elsewhere in the JOURNAL) and such rejected works as I have collected together.

To give you some lead, I may add that Messrs. Robert Atkinson, Stanley Hall, Easton and Robertson, Edward Maufe and G. Grey Wornum each submitted three works and each had three works rejected. That is to say, the total of twelve works submitted by these four firms were rejected. The criterion that one must apply is not that these works are essentially good because they are the product of eminent architects, but that the standard created by such works as were accepted must be higher.

It is a difficult situation for which one cannot wholly blame the selectors, and any amendments which I suggest are directed towards the Royal Academy Committee and not the selectors for 1938.

For instance, the stained glass and mosaics might be scrapped or thrown out of the room, which is sadly overcrowded and the smallest in the Academy.

A screen along the centre of the room might be built even though the hanging of the R.A.'s work lose a little thereby. And, most important, the Selecting Committee ought to be enlarged to four persons with two on the Hanging Committee.

As I write this article I realize more clearly the futility of the whole concern and the glitter of possible reform becomes a rather dim thing on my horizon. In all aspects of life the only real reformation is produced by the existence of a strong opposing school and the fight goes to the stronger and, frequently, the right School.

Such thoughts prevent me from entering on the more frivolous aspect of "Gossip" that formed a part of my early and tidy synopsis and leave me with but one thing to add.

Somehow, an annual exhibition of architecture requires to be founded on a substantial base. That is, it must be financially sound, housed in suitable premises and governed by a group of people backed by an ever-changing Council.

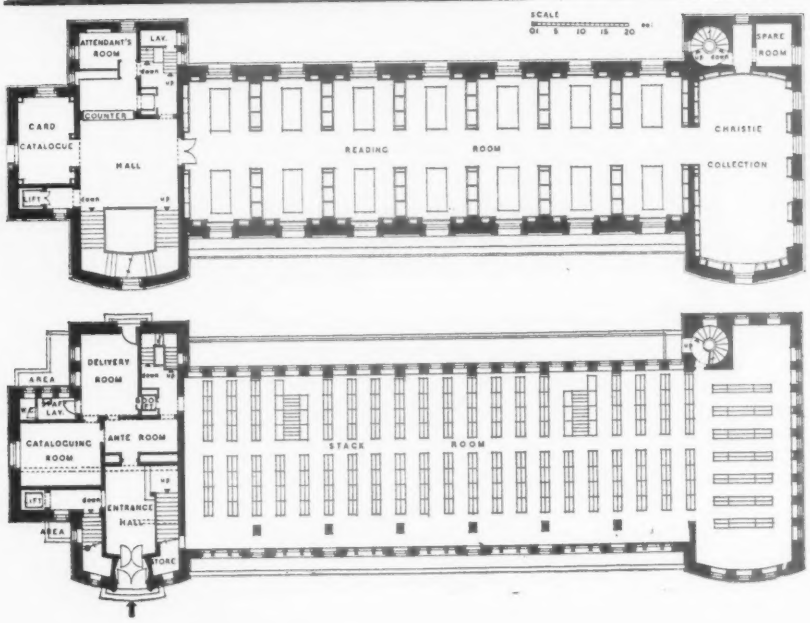
The whole question of architectural presentation would require to be gone into and entry would be open to all architects. These things are still possible.

A few years ago, Messrs. Easton and Robertson submitted their Horticultural Hall to the Academy and it was rejected. Two years later it was awarded the London Medal of the R.I.B.A.

This Arshetecture !

NEW LIBRARY, MANCHESTER UNIVERSITY:

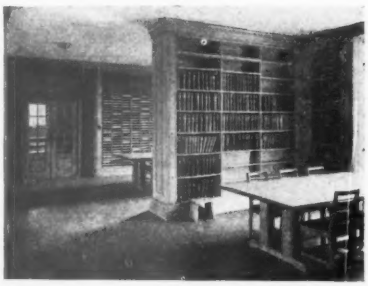
The photographs are: Left, the main front; below, the entrance staircase, showing the book counter and, on the left, the catalogue lobby.



FIRST FLOOR PLAN

GROUND FLOOR PLAN

BY THOMAS WORTHINGTON AND SONS



GENERAL—*This new library will ultimately form the dominating feature of a new group of buildings at Manchester University. These include a staff house and refectory which, with the existing Arts building, will form a group enclosing a large grassed quadrangle, with a tree-planted approach.*

PLAN AND ACCOMMODATION—*On plan the building consists of a rectangle 160 ft. by 38 ft., with wings at each end: the south wing containing entrance staircase and administrative offices, and the north wing containing small reading rooms. In the centre block are two large reading rooms on two floors. They are divided into seven bays on each side of the central aisle by oak bookcases. On the ground and mezzanine floors is the book stack in three decks, which is connected to the upper floors by service stairs and lift. There is seating for 170 readers in the large rooms and 40 in the small ones, and accommodation is provided in the stack room for 70 more, who can work there with direct access to the books. There are 300,000 volumes relating to the Arts and allied faculties: 55,000 in the reading rooms and 245,000 housed on steel racks in the stacks, and the building allows for extension to include an ultimate limit of 2,000,000 volumes.*

FINISHES—*Red bricks have been used for the exterior, with Portland stone for the base and window dressings.*

The photographs on this page show: Top, the Christie Collection room on the first floor: left, the first floor reading room; above, the vaulted bays on the second floor.

For list of general and sub-contractors see page 981.

IN PARLIAMENT

Housing

Mr. Barr asked the Minister of Health what was the total number of houses, as for England and Wales, completed with State assistance from 1919 up to March 31, 1937, or the last available date ; and the total amount of State subsidy paid in respect thereof.

Sir Kingsley Wood said that the following was the answer :—The total number of houses completed by private enterprise in England and Wales with State assistance from 1919 up to March 31, 1937, was 423,723. From 1919 up to March 31, 1936, local housing authorities in England and Wales completed 829,851 houses with State assistance, and during the year ended March 31, 1937, they completed a further 71,029 houses. A small proportion of these houses did not specifically attract a subsidy, but owing to the pooling arrangements brought about by the Housing Act, 1935, all houses now provided by a local housing authority shared in any State assistance given to that authority in respect of their houses. The total amount of State subsidy paid in respect of the houses from 1919 up to March 31, 1937, was £178,715,463.

Slum Clearance

In reply to Mr. J. Griffiths, Sir K. Wood said that 4,300 houses were included in the slum clearance programmes of the Welsh rural authorities and 1,339 replacement houses had been approved, of which over 700 had been completed. A further 386 houses had been approved for the abatement of overcrowding and for general needs. His Department was continually watching the progress of the clearance programme with a view to expediting it where possible.

New Buildings

Mr. Crowder asked the Minister of Health in how many cases during the past two years had the London County Council and the City of London Corporation, respectively, insisted upon the provision of underground garages in the case of new buildings being erected in the Central London area ; and whether he had issued any recommendations in regard to this matter.

Sir K. Wood said that he had no information in regard to the first part of the question, but would communicate with the London County Council and the City of London Corporation on the matter and inform his hon. Friend of the result. While it was not for him to issue recommendations, he concurred in the advice which had from time to time been given by the Minister of Transport.

Preservation

Mr. Mander asked the Minister of Agriculture what action was being taken by the Commissioners for Crown Lands to preserve from destruction Munster Square, Regent's Park, designed by Nash and under their guardianship.

Mr. Morrison said that the plans for redevelopment in the area East of Regent's Park, between Cumberland Market and Longford Street—which included Munster Square—would be settled in consultation with the Town Planning Department of the London County Council and the Crown Lands Advisory Committee and would ultimately be exhibited in the House for inspection before building was commenced. He understood that the tenement houses referred to were designed by a private leaseholder and not by John Nash, and were dilapidated and in many respects out of date as houses to be lived in. The question whether these or other buildings on the estate ought to be preserved on architectural grounds would, however, receive the fullest consideration before the plans for development were finally settled.

SOCIETIES AND INSTITUTIONS

LE PLAY SOCIETY

Sir E. John Russell, of the Rothamsted Institute, Harpenden, is to lead a group of members and friends of the Le Play Society to Russia in August. The visit will afford an excellent opportunity for seeing something of what is being done in the application of science to everyday problems in Russia, particularly in regard to farming. The general geographical features of the country, its geology, vegetation and various social experiments will also be studied. This group will leave London on August 6.

Full details of this vacation visit may be had from Miss Margaret Tatton, Director, The Le Play Society, 58 Gordon Square, London, W.C.1.

NATIONAL PLAYING FIELDS ASSOCIATION

Sir Kingsley Wood, the Minister of Health, speaking on the provision of playing fields and open spaces, at the Conference of county representatives of the National Playing Fields Association in London last week, said that fifty years ago only £80,000 was sanctioned in one year for this purpose by local authorities, by 1920 the figure had increased sixfold, to £477,000, whilst last year it was no less a sum than £3,196,000. The powers of local authorities in this connection would be much wider when the Physical Training and Recreation Bill passed into law. The local authorities would then be not only able to acquire and develop playing fields, but to provide buildings and to acquire land for gymnasia, holiday camps and, by no means least, community centres of the kind which at present they could provide only on housing estates. He hoped that we should soon see throughout the country more plentiful and varied arrangements for physical recreations of all kinds, planned as a coherent whole and centring round suitable community centres.

INTERNATIONAL HOUSING AND TOWN PLANNING CONGRESS

Following is the programme of the International Housing and Town Planning Congress to be held in Paris from July 5 to July 11.

Sunday, July 4.—The Bureau of the Congress will be open at the Maison de la Chimie, 28 bis rue St. Dominique, Paris VII, from 10 a.m.to 1 p.m. and 3 p.m. to 6 p.m. 10 a.m. : A meeting of the executive committee of the Federation. 11.30 a.m.: A meeting of the Council of the Federation. 2 p.m. : A general meeting of the Federation.

Monday, July 5.—9.30 a.m. : Opening ceremony of the Quinzaine Internationale des Administrations Publiques, de l'Habitation et de l'Urbanisme at Maison de la Chimie. 11.30 a.m. to 1.30 p.m. : First session. " Housing for the Working Classes." (*a*) Finance. General Reporter: Mr. F. C. Boldsen, Director, Kobenhavns Almindelige Boligselskab. 3 p.m. to 5.30 p.m. : First Session. " Horizontal and/or Vertical Development." General Reporter : M. Henri Prost, Member of the Institut d'Urbanisme, Architecte-en-chef to the French Government. Evening : Reception by the Committee of the Exhibition.

Tuesday, July 6.—9.30 a.m. to 1 p.m. : Second Session. " Housing for the Working Classes." (*b*) Rents. General Reporter : Ministerialrat Dr. Ebel, Reichs- und Preussische Arbeitsministerium, Berlin. 2.30 p.m. to 7 p.m. : Visits in and around Paris, seeing housing schemes, town planning, social and public works, historic sites (Versailles, Chantilly, St. Germain en Laye). 9 p.m. : Lecture and discussion at the Maison de la Chimie on " The Paris Region," organized by the journal *Urbanisme*, under the chairmanship of M. Henri Sellier.

Wednesday, July 7.—9.30 a.m. to 1 p.m. : Second Session. " Horizontal and/or Vertical Development." General Reporter : M. Henri Prost. 2.30 p.m. : Visits as above. 10 p.m. : Reception at the Hôtel de Ville by the Municipal Council of the City of Paris and the General Council of the Department of the Seine. (Evening dress.)

Thursday, July 8.—9.30 a.m. to 1 p.m. : First Session. " National and Regional Planning." General Reporter : Sir Raymond Unwin, LL.D., Past President of the International Federation for Housing and Town Planning, London. 2.30 p.m. : Visits as above. Evening : Banquet, for members of the " Quinzaine."

Friday, July 9.—9.30 a.m. to 11.15 a.m. : Second Session. " National and Regional Planning." General Reporter : Sir Raymond Unwin, LL.D. 11.30 a.m. : General assemblies of members of each of the two associations. 12.30 p.m. : Joint general assembly of members of the two associations. 2.30 p.m. : Visits as above. 4 p.m. : A meeting of the Council of the Federation.

Saturday, July 10.—9.30 a.m. : Meeting of delegates with delegates of the Congresses of the International Union of Town and Local Authorities and the International Institute of Administrative Science and other international organizations, for a discussion on " Methods of Work and International Co-operation." Afternoon : Free. Evening : Exhibition Park : " Fête de la Lumière."

Sunday, July 11.—8 a.m. : Depart from the Gare de l'Est for Rheims by special train. Visit the town and reception by the municipal authorities. Evening : Return to Paris.

SOUTH WALES INSTITUTE OF ARCHITECTS

At the annual general meeting of the above Institute the following officers were elected : President, Mr. O. S. Portsmouth (Swansea) ; vice-presidents, Messrs. W. S. Purchon (Cardiff) and C. F. Bates (Newport) ; hon. treasurer, Mr. H. Teather (Cardiff) ; hon. auditor, Mr. C. F. Jones (Cardiff) ; hon. librarian, Mr. Lewis John (Cardiff) ; hon. secretary, Mr. Ivor P. Jones (Cardiff).

WORKING DETAILS : 547

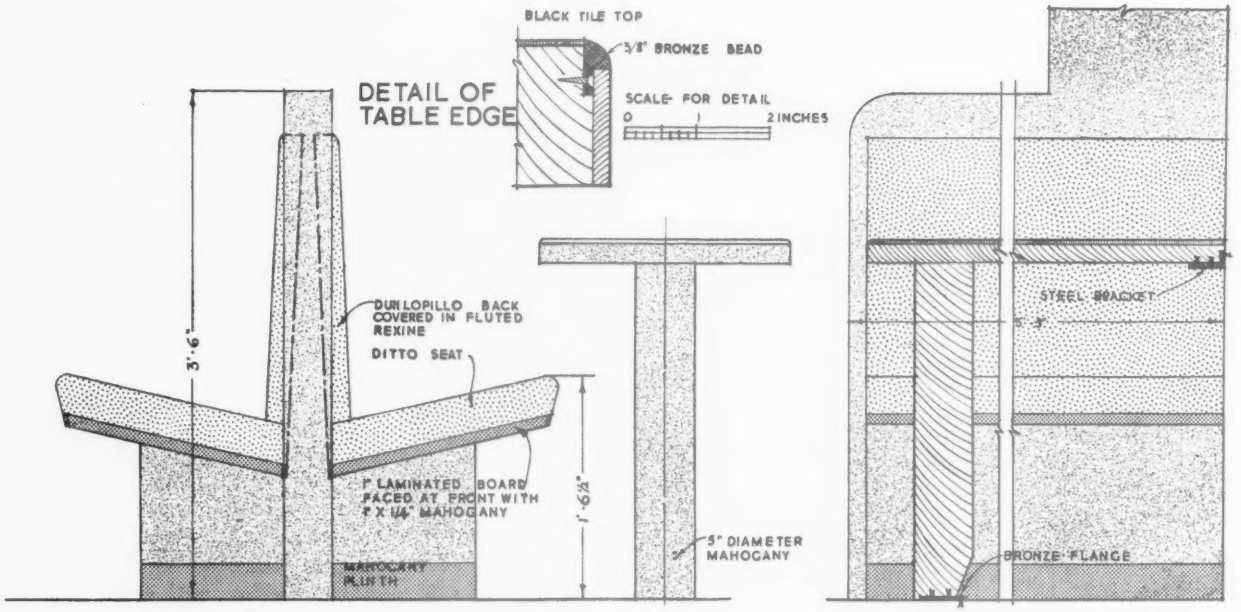
SEATING • KARDOMAH CAFÉ, PICCADILLY, W. • MISHA BLACK AND WALTER LANDAUER

The interior of the café is planned with built-in tables and seats. The table tops are covered with tiles and the seats upholstered with rubber cushioning covered with red leather cloth. The latter is fluted, the flutes being hair padded to prevent rucking or creasing. For details see overleaf.

FILING REFERENCE:

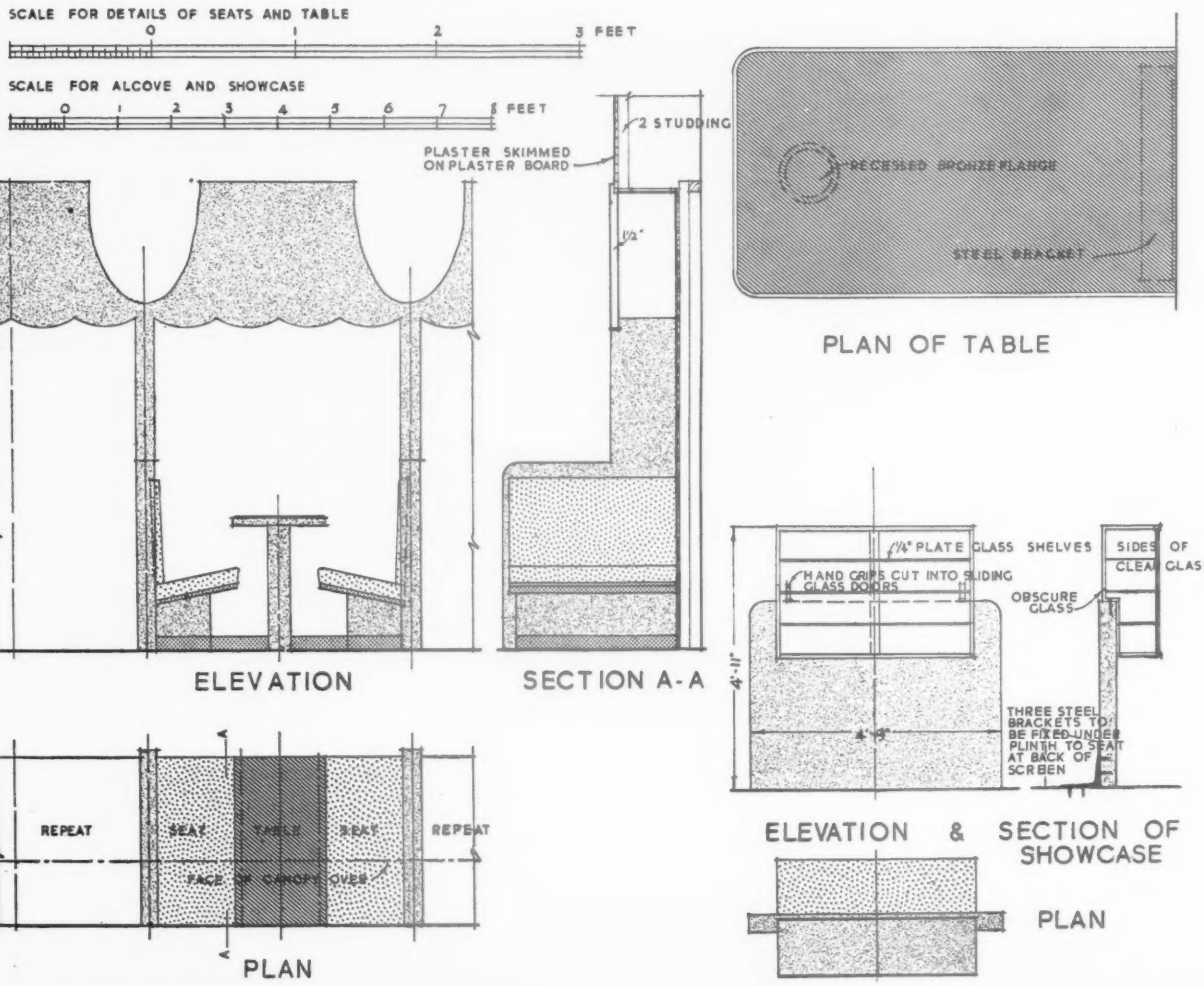
WORKING DETAILS : 548

SEATING • KARDOMAH CAFÉ, PICCADILLY, W. • MISHA BLACK AND WALTER LANDAUER



DETAIL OF SEATS & TABLE

SECTION THROUGH ALCOVE



ELEVATION

SECTION A-A

PLAN OF TABLE

ELEVATION & SECTION OF SHOWCASE

PLAN

Details of the alcove seating illustrated overleaf.

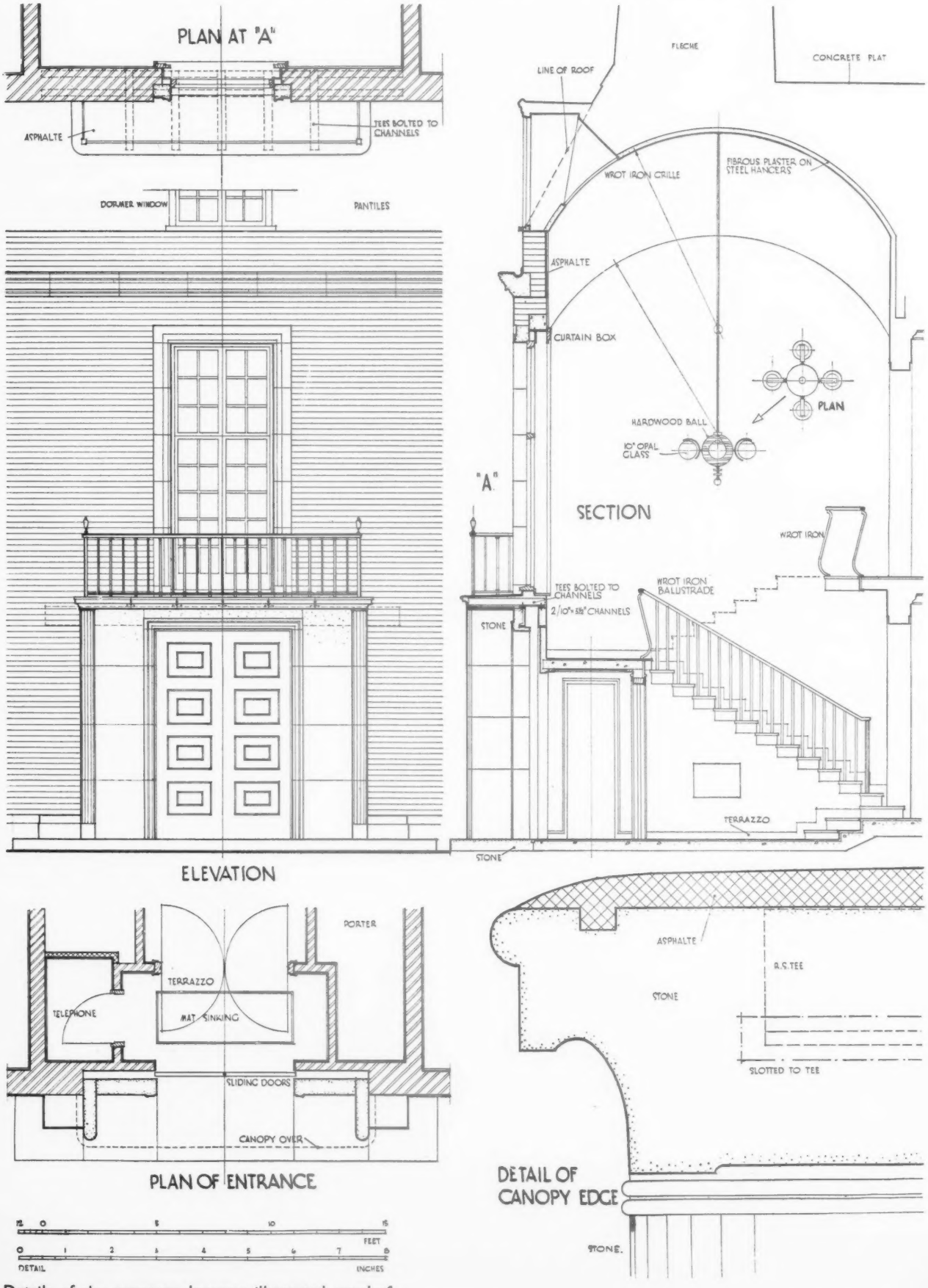
WORKING DETAILS : 549

ENTRANCE • WELWYN TOWN HALL • ELSOM AND STONE

The elevations are designed to harmonize with the architectural character of the garden city. Multi-coloured facing bricks, artificial stone dressings and hand-made sand faced pantiles are the principal materials used. For details of the entrance illustrated see overleaf.

WORKING DETAILS : 550

ENTRANCE • WELWYN TOWN HALL • ELSOM AND STONE



Details of the entrance doorway illustrated overleaf.

The Architects' Journal Library of Planned Information

INFORMATION SHEET

SUPPLEMENT

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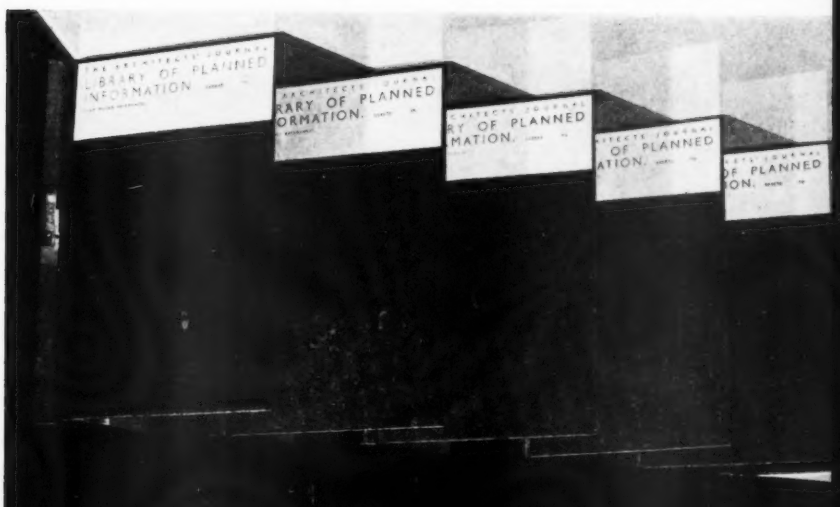
518 Plumbing Systems—II

519 Kitchen Equipment



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408 : Joinery
409 : Rubber-faced Building Slabs
410 : Places of Public Entertainment—II
411 : Electric Switchgear
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413 : Plumbing in Welded Copper Pipe
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506 : Approximate Estimating—XIII
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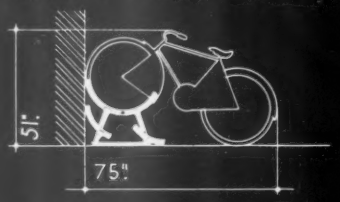
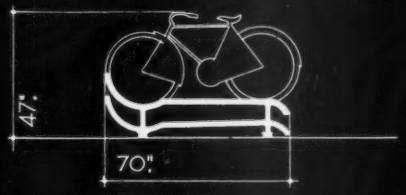
511 : Elementary Schools—II
512 : School Lighting
513 : Approximate Estimating—XIV
514 : Air Conditioning
515 : Insulation of Buildings
516 : Cycle Parks

659. # THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION.

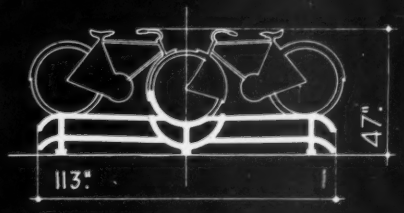
PATENT STEEL CYCLE PARKS FOR INTERIOR USE.



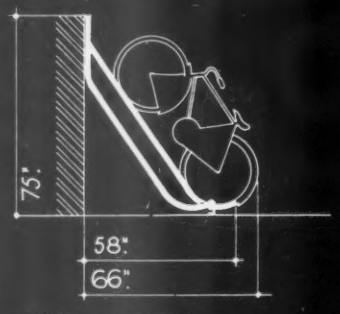
MODEL C P R.
Single sided cycle park with alternate front wheel supports raised.



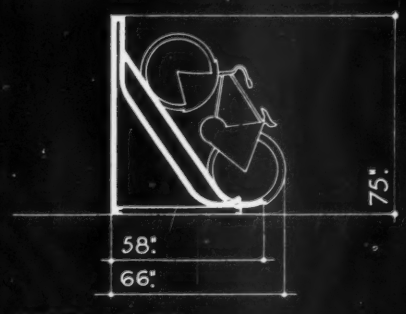
MODEL C P H.
Single sided, horizontal, self-supporting cycle park.



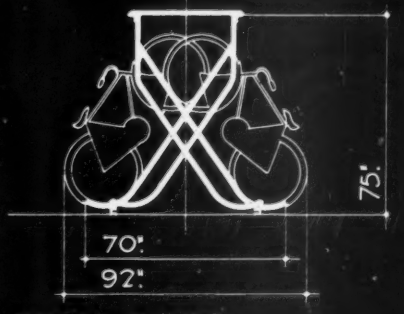
MODEL DCPH.
Double sided, horizontal, self-supporting cycle park.



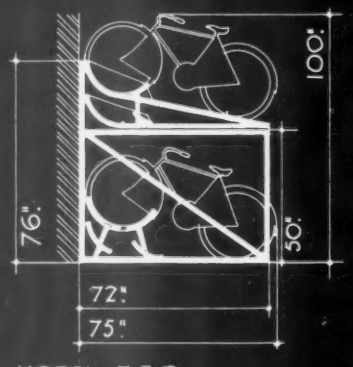
MODEL C P S U.
Cycle park, sloping, for fixing to wall or other support.



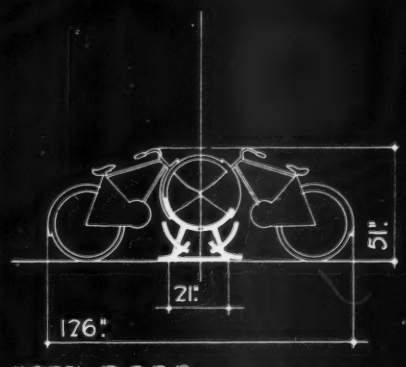
MODEL C P S.
Self-supporting single sided sloping cycle park.



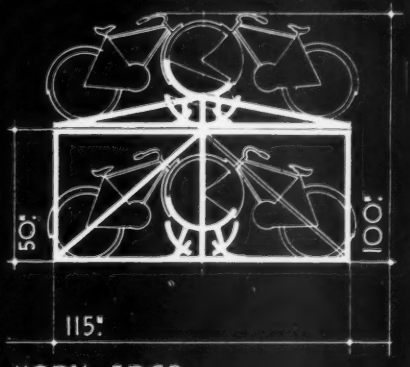
MODEL DCPS.
Self-supporting double sided sloping cycle park.



MODEL T C P.
Two tier single sided cycle park.



MODEL D C P R.
Double sided cycle park with alternate front wheel supports raised.



MODEL T D C P.
Two tier double sided cycle park, giving maximum use of floor area.

PLANS OF SINGLE SIDED AND DOUBLE SIDED CYCLE PARKS.

Scale of drawings on this sheet in feet:
0 1 2 3 4 5 6 7 8

The cross dimension of the cycle park depends on the type of park to be used, but the spacing of cycles in the parks is uniform throughout.

Information from Constructors Ltd..

INFORMATION SHEET: PATENT STEEL CYCLE PARKS FOR INTERIOR USE: N°2
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Oscar A. Bayne.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 517 •

CYCLE PARKS

Product : Patent Steel Cycle Parks for Indoor Use

General :

This Sheet, the second of a series of four, deals with Constructors' Patent Steel Cycle Parks for indoor use. The types of park vary, and a wide range is available, comprising single and double-sided, horizontal or sloping, one or two tier.

Construction :

The channels in which the cycles are parked are constructed from 13 gauge ($\frac{3}{32}$ in. thick) mild steel. In the horizontal models both ends of the channel are supported on gussets arc-welded to the sleepers.

Erection :

The parks are despatched unassembled, necessary members being marked to facilitate erection. This, together with the instructions and drawings supplied, makes erection by the customer a simple matter. The manufacturers will erect if required.

Foundations (method of anchorage) :

For concrete or other solid sites, the parks are secured by means of coach screws and "Rawlplugs." Where the site is composed of gravel or any other loose material, the parks are secured by anchor plates on long bolts buried to a depth of 12 ins. It is essential that details of foundation should be given when ordering so that suitable fixings can be supplied.

Spacing :

Full details for the spacing of parks, minimum gangways, etc., are shown in the plans and sections on the front of the Sheet.

Selection of Type :

Where ample space is available, models CPH, CPR, DCPH, and DCPR are recommended, these models being noted for extreme ease of parking and therefore particularly suited for the use of women and children.

Models DCPS, CPS, and CPSU are particularly economical in ground space.

Models TCP and TDCP provide the maximum possible accommodation. These are suitable for either men or youths.

All models are constructed on the initial and extension unit principle, enabling parks to be enlarged from standard components whenever required.

Parking Principle :

Cycles are supported in the specially designed channels only through the medium of the tyres, thereby eliminating all possibility of damage to the cycle. The entrance end is splayed to allow easy ingress of the wheel.

Models DCPS, CPH, DCPH, CPS and CPSU all have channels supporting both wheels of the cycle.

With models CPR and DCPR, the cycle is supported by the front wheel only. The channel is in two sections, the front one being pivoted; it is then only necessary to wheel the cycle into this pivoted shoe to park automatically without lifting.

Finish :

All steelwork is thoroughly cleaned and stoved with one coat rust preventative and one coat grey enamel.

Prices :

Indoor Models

Model	Price per cycle
CPH	10/–
CPR	12/6
DCPH	10/–
DCPR	11/3
CPS	12/–
CPSU	9/6
DCPS	9/6
TCP	15/9
TDCP	15/9

Extras :

Ivorine number plates, chains, and padlocks will be quoted on request.

Previous Sheet :

The first Sheet in this series dealing with cycle parks is No. 516.

Issued by : Constructors Limited

Registered Office and Works : Nickel Works, Tyburn Road, Erdington, Birmingham

Telephone : Erdington 1616 (5 lines)

London Office and Showrooms : 7 Sunbeam Road, Park Royal, Acton, W.

Telephone : Museum 7873/4

Manchester Office : 122 Corn Exchange Buildings, Manchester, 4

Telephone : Blackfriars 2765

Glasgow Office : 58 Bath Street, Glasgow

Telephone : Douglas 5885

14. THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION.

PIPE SIZES IN RELATION TO THE RATE OF DISCHARGE OF SANITARY FITTINGS.

THE FIXTURE UNIT SYSTEM.

This is a system for denoting the various rates of waste discharge of different types of fittings in terms of a standardised unit (known as a fixture unit) for the purpose of classification and calculation. One fixture unit represents a rate of discharge of 1 cubic foot per minute. The fixture unit values of various typical fittings for domestic use are given below. For fixture unit values of fittings for public and specialised use, see the back of this sheet.

	Fixture units.
One lavatory or washbasin. 1¼" trap	1.
One kitchen sink. 1½" trap	3.
One bath. 1½" trap	3.
One laundry tub. 1½" trap	3.
One combination fixture. 1½" trap	3.
One shower stall, head only. 1½" trap	2.
One shower stall, multiple spray. 2" trap	4.
One floor drain. 2" trap	1.
One slop sink. 2" trap	3.
One water-closet. 3" trap	3.
One bathroom group consisting of 1 water-closet, 1 lavatory, and 1 bath with or without shower head	6.
One bathroom group consisting of 1 water-closet, 1 lavatory and 1 shower compartment	6.

One hundred and eighty square feet of roof or drained area in horizontal projection count as one fixture unit.

MAXIMUM FIXTURE UNITS ON ONE STACK.

The required size of a soil or waste stack shall be determined by the distribution and total of all units connected to the stack in accordance with the table given here, except that no water-closet shall discharge into a stack less than 3 inches in diameter.

Diameter. INCHES.	With sanitary T inlets.		With all 45° Y or combination Y and one eighth bend inlets.		Maximum length including extension as vent. FEET.
	In one branch interval.	On any one stack.	In one branch interval.	On any one stack.	
1¼.	1.	1.	1.	1.	50.
1½.	2.	8.	4.	12.	65.
2.	9.	16.	15.	36.	85.
3.	24.	48.	45.	72.	212.
4.	144.	256.	240.	384.	300.
5.	324.	680.	540.	1020.	390.
6.	672.	1380.	1122.	2070.	510.
8.	2088.	3600.	3480.	5400.	750.

BRANCH INTERVAL.

The term "branch interval" shall be interpreted to mean a vertical length of stack, not less than 8' 0" within which a branch or branches are connected, & the total fixture units on all branches connected to a stack within any 8' 0" length shall not exceed the maximum permitted by the table in one "branch interval".

Extracted from a report made by a sub-committee on Plumbing, U.S.A. Dept. of Commerce.

INFORMATION SHEET: EXPERIMENTS ON THE EFFICIENCY OF WASTE PLUMBING: 2.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A. Bayne

THE ARCHITECTS' JOURNAL
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• 518 •

PLUMBING SYSTEMS—II

This series of Sheets is based on extracts from a report, "Recommended Minimum Requirements for Plumbing," issued by the sub-Committee on Plumbing of the United States of America Department of Commerce, which carried out a series of tests on plumbing systems specially erected for experimental purposes.

This Sheet summarizes certain of the conclusions of the committee with regard to the discharge of waste from plumbing systems, and describes the fixture unit system for classifying rates of waste discharge, and its application in selecting appropriate diameters for soil and waste stacks.

The fixture unit :

In order to simplify the study of problems concerning waste discharge a unit known as the fixture unit was evolved, based on the rate of discharge from a typical lavatory basin with a nominal 1¼ in. outlet, trap and waste, representing a rate of discharge of 1 cub. ft. per minute, in terms of which the discharge rate of any fitting can be assessed.

Fixture unit value is assessed in terms of the maximum discharge from the fixture, on a basis involving both its capacity and speed of discharge. It is made clear that the values assigned to the different types of fitting are generalizations, and that the actual discharge rate from any particular fitting may differ a good deal from that of other fittings in the same class. The figures given here, however, are sufficiently representative to serve the purpose for which they were intended.

Classification of fittings in fixture unit values :

For the purpose of assessing fixture unit values, sanitary fittings are divided into three classes :—

Class 1 (*private*), applies to fittings in domestic use and to fittings in private bathrooms of hotels and similar installations where the fittings are intended for the use of a family or an individual.

The fixture unit values for the various types of fitting that fall within this class are given in the table on the other side of this Sheet.

Class 2 (*semi-public*), comprises fittings in office buildings, factories, dormitories and similar installations where the fixtures are intended for the use of the occupants of the building.

Class 3 (*public*), applies to fittings in general toilet rooms of schools, gymnasiums, hotels, railway stations, public conveniences and other installations where a number of fixtures are installed so that their use is similarly unrestricted.

The table of fixture unit values also includes a recommendation regarding the minimum nominal trap and waste diameter suitable for each type of fitting specified in the table.

Fixture unit ratings for all fittings given a single rating shall apply to those fittings in all classes of installation.

A floor drain receiving regular or intermittent discharges from fittings shall be counted as the total of the fittings drained into it.

Sump pumps ejecting storm or seepage water shall be counted as drained area, 600 sq. ft. for each 25 gallons per minute discharge capacity.

Assessment of rainwater drains in fixture unit values :

A value of one fixture unit per 180 sq. ft. has been assigned to drained areas in horizontal projection on a basis of a rainfall rate of 4 ins. per hour, a figure which is considered to represent the average intensity of storm conditions throughout the United States. While this figure gives a good factor of safety in most cases, it is suggested that where large systems are being designed, this average figure should not be used, but that the correct figure should be obtained from a study of local rainfall intensity.

TABLE OF FIXTURE UNIT VALUES FOR FITTINGS IN CLASSES 2 AND 3 AND FOR SPECIALIZED USE

Fixture and Class of Installation	Min. nominal trap and waste. Dia. in ins.	Fixture units
1 lavatory or wash-basin. Class 2 or 3	1¼	2
1 water-closet. Class 2	3	5
1 water-closet. Class 3	3	6
1 bath. Class 2 or 3	2	4
1 shower stall, shower head only. Class 2 or 3	2	3
1 shower stall. Multiple spray. Class 2 or 3	3	6
Gang shower, for each shower-head	—	5
1 urinal, lip or each 2 ft. of trough or gutter	1½	2
1 urinal, stall or wall-hung, with tank or flush valve supply	2	4
1 urinal, pedestal or blow out	3	5
1 bathroom group consisting of 1 lavatory, 1 water-closet, 1 bath, and 1 shower stall in the same bathroom	—	7
1 sink. Hotel or restaurant, pot sink	3	8
1 sink. Ditto vegetable sink	2	6
1 sink. Ditto glass or silver sink	1½	3
1 sink. Lunch counter bar sink	2	6
1 sink. Soda fountain bar sink	1½	1½
1 sink. Syphon jet slop sink, flush rim or mop	3	6
1 sink. Bedpan sink or bedpan washer	3	6
1 sink. Laboratory, surgeon's or medical sink	1½	1½
1 sterilizer. Instrument, utensil or water	1¼	½
1 sterilizer. Bedpan	3	6
1 footbath or sitz bath	1½	2
1 infants' or babies' slab bath	1½	½
1 bidet	1½	3
1 drinking fountain	1¼	½
1 cuspidor, fountain or dental	1¼	½
1 floor drain—flush rim	2	3
1 floor drain, receiving overflow from tanks or discharges from unrated fittings shall be rated on the estimated maximum flow for each gallon per minute	—	2
1 sewage ejector, for each 25 gallons per minute discharge capacity	—	50

When the capacity of a house drain is being worked out by means of fixture units, this rain allowance should be added to the other requirements, as although the chance of storm rainwater conditions occurring at the time of the peak load from the fixtures is small the factor of safety will be none too large unless this is done.

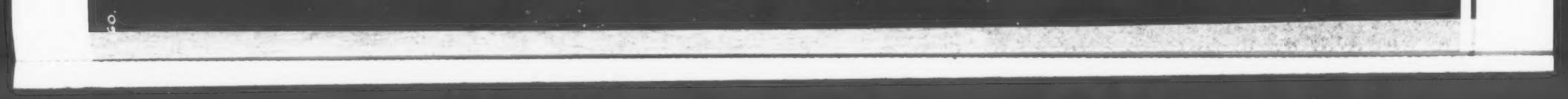
Soil and waste stacks :

The report states that every building in which plumbing fixtures are installed must have a soil or waste stack, or stacks, extending full size through the roof, the stacks to be as direct as possible and free from sharp bends and turns. The required size of the stack should be calculated from the distribution and total of all fixture units connected to it, and a table is given on the other side of this Sheet showing the maximum number of fixture units permitted to any stack, in relation to its diameter, total length and the arrangement of the branches and junctions.

The permitted maximum is affected by the type of branch inlet, and the stack is divided for the purpose of calculation into a number of "branch intervals," each having a minimum length of 8 ft. Only a limited number of fixture units is allowed to be brought into the stack within any one branch interval. The table shows this, and includes a note defining a branch interval and describing its effect on the calculations.

Previous Sheet:

The first Sheet in this series was No. 484.



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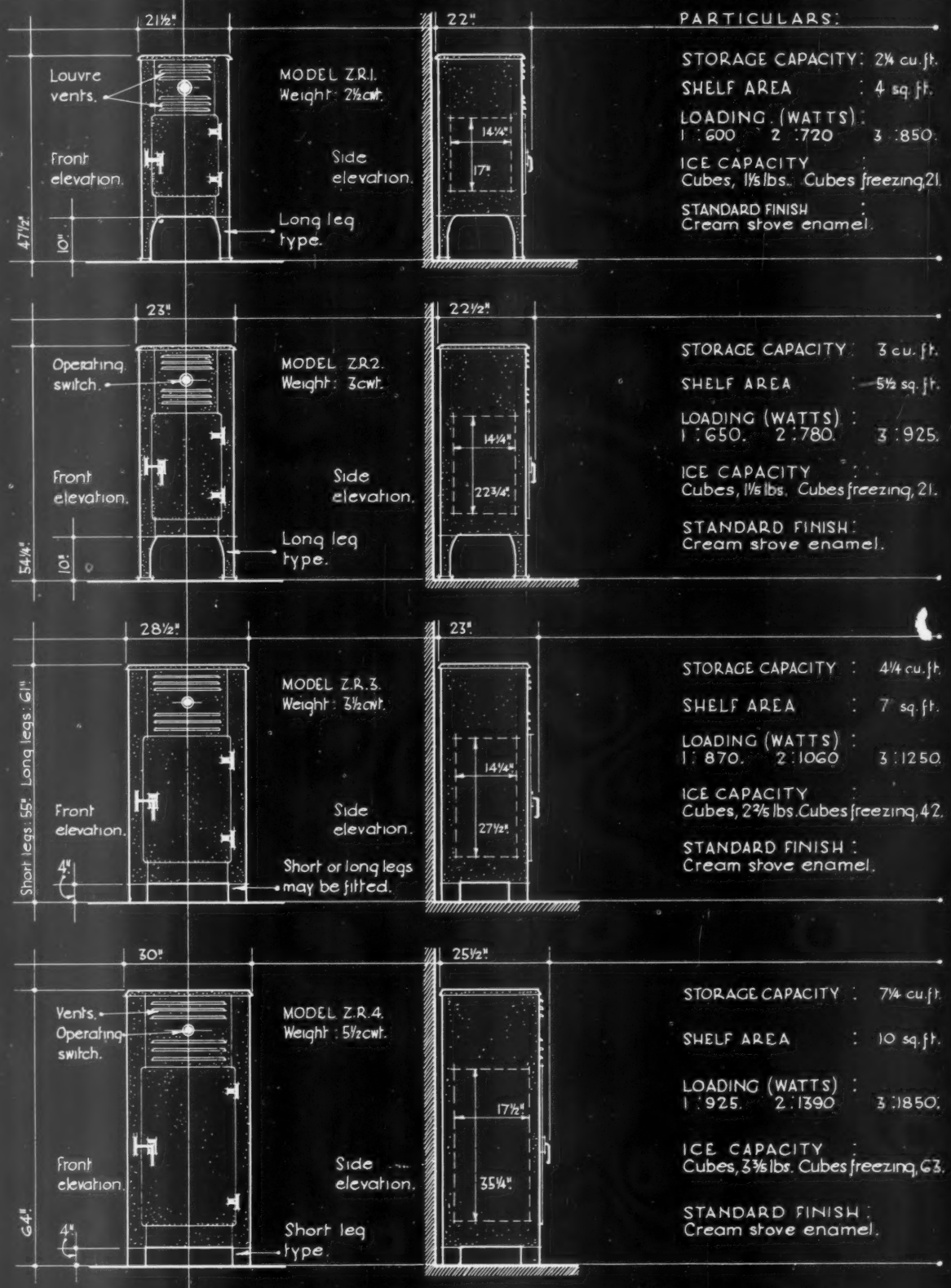
DIAGRAMS GIVING SIZES AND PARTICULARS OF "ZEROS" REFRIGERATOR MODELS: (Motorless).



Information from the Isrnay Refrigerating Co. Ltd.

INFORMATION SHEET : AUTOMATIC ELECTRIC REFRIGERATORS : No. 1.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Oscar A. Bayne

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INFORMATION SHEET
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KITCHEN EQUIPMENT

Product : Zeros Automatic Electric Refrigerators

General :

On this Sheet are shown the four standard Zeros refrigerator models of the free-standing type, with overall sizes and various particulars. Future Sheets of this series will illustrate the models specially designed for use in conjunction with built-up kitchen cabinets and sink units.

Construction :

The refrigerators are formed of a heavy gauge steel outer framing around the inner metal cabinet, the space between being adequately insulated to prevent penetration of heat from the room. There is no motor, compressor, or moving machinery of any description incorporated in the structure.

Control :

The production of cold within the cabinet is obtained by use of an ordinary electric heating element. This is contained in a hollow cylinder placed in the upper part of the refrigerator, the electric loading of which is controlled to suit varying weather conditions by means of a variable switch on the face of each model. The element itself is automatically switched on for 1½ hours in every eight, by means of a time clock also actuated by the electric supply.

Operation :

At the beginning of any one of the three 8-hourly cycles, the heat generated by the element acts upon the ammonia-saturated calcium chloride, contained in the hermetically sealed absorber generator, and releases the ammonia in the form of gas.

The heated ammonia gas is immediately led to a separate and air-cooled condenser, where cooling and liquefaction take place. In the liquid form the ammonia flows down by gravity to the storage container cylinder and thence by coils to the cold storage box within the inner refrigerator cabinet. The liquid ammonia storage is sufficient to feed the evaporator coils for 6½ hours.

Cold Storage Box :

This box becomes a solid, permanent ice block during cold production, and provides a reserve of cold sufficient to cater for normal temperature variation inside the cabinet and at the same time to maintain a constant low temperature therein.

Vaporisation :

Upon the extraction of heat from the cabinet, the ammonia vaporises, bubbles back through the liquid ammonia and is immediately re-absorbed by the calcium chloride in the absorber generator. A constant temperature is maintained inside the cabinet by means of a tank holding a liquid which surrounds the evaporator coils. This system of refrigeration therefore dispenses with all moving mechanical parts, and eliminates wear and tear.

Power :

Models up to and including 3 cubic feet capacity require a 5-amp. supply power point, and models above 3 cubic feet capacity require 10-amp. points. All models are designed for A.C. supply, but may be adapted for D.C. current at a small extra charge.

Guarantee :

The Company gives a complete guarantee against repairs and replacements over a period of six years.

Prices :

Model Z.R.1	...	...	25 guineas
Model Z.R.2	...	...	28 guineas
Model Z.R.3	...	...	34 guineas
Model Z.R.4	...	...	50 guineas

All models may be purchased by instalments.

Manufacturers : The Ismay Refrigerating Co., Ltd.

Address : Zeros Works, Dagenham, Essex

Telephone : Seven Kings 3466

INFORMATION SUPPLEMENT: 10

ASBESTOS - CEMENT

ITS PRODUCTION AND USES

[*BY COLIN PENN, A.R.I.B.A.*]

1. PRODUCTION

Physical Properties

ASBESTOS-CEMENT is a hard, somewhat brittle, grey substance composed of asbestos fibre and Portland cement. Its value in the building industry arises from the fact that it is unharmed by sun, rain, frost, or vermin, and is remarkably resistant to corrosive agents. Concentrated alkalis and acids have little or no effect on it, but as for some uses a special anti-acid treatment is desirable the makers should be consulted if doubt exists. Figures for some of its properties are :—

Weight per cubic foot	111.7 lbs.
Compressive strength	10,600 lbs. per sq. in.
Tensile strength ..	1,910 lbs. per sq. in.
Thermal conductivity (per 1 in. thickness)	2.0 B. Th. U per sq. ft. per hour per 1° F. temp. difference.
Solar reflectivity of natural grey material when new.	60 per cent.

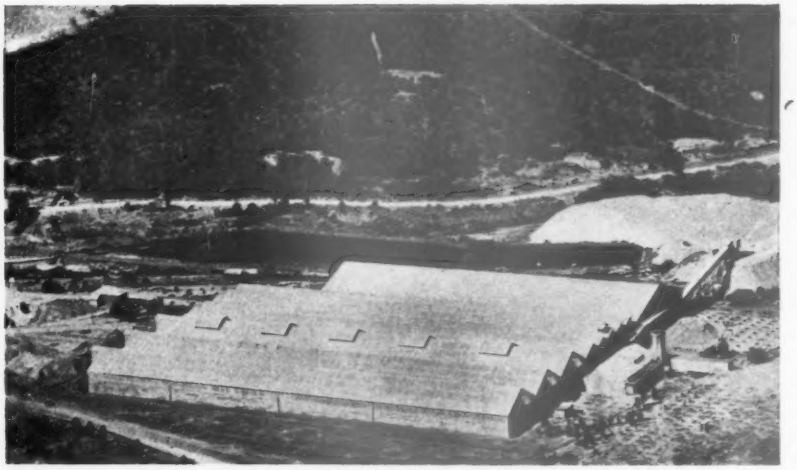
Although asbestos-cement is incombustible, it may crack and fly under the influence of great heat. It is often used in situations where sheet asbestos, with its superior thermal insulation and resistance to fire, would be more suitable. When utilized for roofs and walls, it must be combined with an air space, some form of pugging, or metallic foil, if a low conductivity is desired (see Fig. 7). Being composed largely of Portland cement it is naturally a good conductor of sound.

Most asbestos-cement objects are easily cut with an ordinary hand saw, the edges being smoothed off with a coarse file if necessary. Holes for fixing should always be drilled and not punched ; punched holes are likely to have ragged edges and to form the beginning of a crack which will open during service. There is no difficulty about the application of paint, varnish or distemper, provided a suitable alkali-resistant primer is applied first. For pipe joints the special compounds supplied by the makers should be used.

Development of the Industry

The manufacture of a building board of pure asbestos was begun in England about 1900, and a few years later

Above, an asbestos mine in Southern Rhodesia, from which comes a considerable proportion of the raw asbestos fibre.



The central grading plant at a Southern Rhodesian mine. The buildings are walled and roofed with asbestos-cement sheeting.

asbestos-cement was produced, though imports from Belgium supplied the greater portion of the market until 1910. In that year the patents governing the Belgian process fell under the Patents Act, and three or four British firms started production on a substantial scale. Today the material is being manufactured in at least fifteen countries, and in England there is a very large output under highly organized and controlled conditions. The makers have an agreement between themselves by which uniformity of prices is maintained.

British Standard Specifications, giving tolerances and strengths, have been published for several products, and are referred to under the appropriate headings. It is hoped, however, that more general tests may be devised in the future to enable quality to be estimated. In the meantime, architects may be satisfied that asbestos-cement has been sufficiently tested by use to render unexpected defects very unlikely indeed if the material is used in suitable ways.

Raw Material

Mineral asbestos is distributed widely throughout the world, Rhodesia, South Africa, Canada, Russia, Italy, and Cyprus being the chief centres of production. The majority of that imported into this country comes from Canada, South Africa, Rhodesia and Cyprus. The rock is quarried from veins in metamorphosed volcanic formations, and is of a dark green, rather glassy, appearance, considerably mixed with impurities in the form of ordinary stone. It is easily split up by hand and is then found to consist of numerous parallel fibres of a dirty white colour. The length of the fibres varies considerably, from perhaps $\frac{1}{16}$ in. to one yard, in different quarries, but great length is a rarity and has no commercial advantage. There are similarly wide variations in the toughness and flexibility of the fibres. White asbestos, consisting of magnesia and silica, is universally used in the asbestos-cement industry.

After being quarried the mineral is cobbed, crushed, fiberized, and graded before being packed into sacks for shipment. Its inert nature enables the manufacturers to hold immense stocks, as they are not liable to attack by vermin or the atmosphere. Rats are quickly killed by asbestosis, an occupational disease similar to silicosis, against which precautions are necessary for some workers who handle the raw fibre.

Manufacturing Processes

For the manufacture of asbestos-cement the graded fibres are mixed with water and Portland cement and built up into flat sheets in a rolling mill. These sheets form the basis of all products except pressure pipes. The mill has a cylinder of circumference equal to the length of the sheet to be manufactured, liquid asbestos-cement being transferred to it by an endless felt belt. As the cylinder revolves the thickness of material on it increases until at the correct moment it is stripped and falls flat on a conveyor belt below.

At this stage of its manufacture the sheet is damp and flexible, with a certain toughness and the consistency of wet cardboard. The fibres are evenly distributed, so that there is no tendency to lamination. In this condition the sheet is rolled on a wooden roller and carried away for the next stage of its treatment. A peculiar property of the material is that if the sheets are subjected to pressure, as they are—after cutting to size—in the manufacture of roofing slates, the water is expelled but there is no lateral expansion whatever, the area of the sheet remaining the same.

Corrugated roofing is made by placing the damp sheet on a metal mould, pressing it into the corrugations with rollers, and trimming to size. After 24 hours the sheet can be taken from the mould and stacked for maturing, which takes four or five weeks.

For the manufacture of rainwater goods, cowls and similar objects a wooden mould is made in halves. A flat sheet is cut while damp into pieces of the correct shape and these are placed over the mould and pressed into it with wooden tampers. The other half of the mould is filled in the same way and the two pieces are placed together and clamped, after which the joints are smoothed over from the inside so that the two halves adhere to each other. The moulds are then put away for the material to set. If this process is unsuitable articles may be built up on a wooden core instead of in a mould. There is almost no limit to the size of the products, complicated junctions and bends for large ventilating ducts being readily manufactured.

Pressure pipes are made on a different principle, being built up on a revolving steel core. When the correct thickness is attained they are slipped off and an expanding wooden mandril is inserted to ensure the retention of correct bore. After the pipe has set it is cured under water for eight to ten days before being trimmed to length, turned to exact outside diameter at the ends and threaded. A further five or six weeks' air-maturing is allowed before dispatch for use.

Roofing slates are not now made with the colour integral with the asbestos-cement as was formerly the practice. The colours so obtainable were limited, and the pink slates so notorious some years ago often demonstrated the efflorescence to which they were subject. The present method of spraying on surface colours and then stoving allows of more variety and has been found to be far superior in durability.

Coloured flat sheets are made in several different ways, according to the finish desired, details of some of the processes being closely guarded by the manufacturers.

Future Possibilities

The outstanding feature of the manufacture of the majority of asbestos-cement articles is its simplicity. Nearly all products are made from flat sheet, and in almost every instance the whole process of moulding is carried out by hand. The moulds are cheaply and quickly made from wood and can be re-used in 24 hours.

There is no reason, therefore, why the architect should not design his own rainwater heads and similar fittings without prohibitive expense, while many new uses could be developed if he realized the possibilities of the material. Asbestos-cement draining-boards are an example of an application which has resulted in the production of an ideal shape as regards fitness for purpose—a shape to which wooden boards are but imperfect approximations. The use of the material for

flower-boxes, suggested by Messrs. Gropius and Fry, is another very suitable application, asbestos-cement having no superior in situations where there is constant dampness. But one must remember that although moulds are quickly made time must be allowed for products to mature before delivery, at least four weeks being necessary for this.

To those architects who are looking for a new material for the external facing of buildings the claims of asbestos-cement are now worth careful examination. It is cheaper and less easily broken than glass, cheaper and less corrodible than metal. Moreover, it is eminently suitable for the manufacture of standardized wall units, and the experiment of having sheets especially made would not be so expensive as with other materials. Wall units could be designed with stiffening ribs or corrugations as necessary, with moulded mullions or cover strips of the same material at junctions, rebated so that the sheets could be bedded in mastic. Some provision would have to be made for an internal skin to give thermal insulation, but possible ways of doing this come to mind immediately. Stiffened sheets would be capable of supporting considerable loads, though reinforcing rods could be included in the mullions if necessary. Units suitable for use as flat roofing and capable of spanning 6 ft., 8 ft., or 10 ft. already exist, and are described later, and it is probable that they could and will be improved so as to span, say, 12 ft. with a dead weight of not more than 10 lbs. per square foot.

2: PRESENT USES

Roofing

Corrugated Sheets. The large thin tiles into which asbestos-cement can be moulded are peculiarly suitable for roofing work, the elimination of battens and closely-spaced rafters resulting in a roof of very light weight. No other material has such a wide range of accessories, designed to enable all problems to be dealt with simply and quickly, without the need for specials or complicated flashings. Various colours are available, but for most work it is doubtful whether the natural grey, which is cheaper and has the advantage of a higher solar reflectivity, can be improved on. The chief varieties of roofing sheet are summarized in Fig. 4.

British Standard Specification No. 690/1936 gives dimensions, tolerances, strengths, etc., for asbestos-cement slates and unreinforced flat sheets and corrugated sheets. The minimum average breaking load of three specimens of the 3-in. pitch corrugated sheets, tested wet over a span of 2 ft. 6 ins., is specified as 12 lbs. per inch width. For the 6-in. pitch corrugated sheets, and for those with an alternate flat and corrugated section, the breaking load when tested over a span of 3 ft. 6 ins. is 26 lbs. per inch width.

The strength of some types of roofing sheet is further increased by the incorporation of metal mesh reinforcement. Other types use a "safety reinforcement" of bituminized tape, which although it does not appreciably increase the strength may prevent injury to workmen who happen to walk on a sheet which cracks beneath them. It is always advisable to use duck-boards when working on asbestos-cement roofs.

Fixing to steel purlins is normally carried out with galvanized hook bolts which pass under the purlin and are drawn up tight with a nut, as shown in Fig. 1. If it is required to provide some form of sound or heat insulation it will probably be found easier to use wooden purlins spanning between steel principals. The insulating material may then be fixed to the underside of the purlins, which may themselves be bedded on cork pads on the trusses if the transmission of structure-borne sound is to be avoided. Fig. 2. Galvanized drive screws are used for fixing the asbestos-cement to wooden purlins, and the drive screws, like the hook bolts, have lead cups and asbestos felt washers or similar means of making the hole watertight.

If it is desired to lay roofs to pitches flatter than 22½ deg., the end lap should be increased or the joints sealed with bituminous solution obtainable from the makers.

Fig. 3 shows some accessories in use. The ridge, of the close-fitting type, is adjustable to any pitch. Another type of ridge capping is available which has wings turned up from the roof in order to afford some ventilation. It may be interlaid with the close-fitting type to give the amount of ventilation desired. The louvred ventilator shown is built up from special asbestos-cement louvre blades and ferrules, the roof being finished below it by means of an apron flashing piece which is used wherever roofs abut against vertical surfaces.

For hips, adjustable capping is usually employed, scribed on the job to the corrugations of the roof. Special closed-end sheets, the corrugations of which are flattened out at one end, allow neat finishes at eaves and above patent glazing. Where flue outlets penetrate the roof soaker flanges should be used. They are interlaid with the normal roofing sheets and have an upturned flange on which the flue

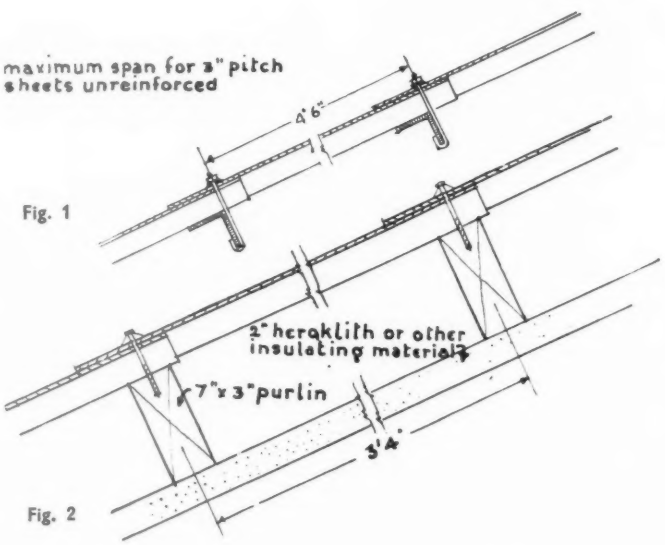


Fig. 1

Fig. 2

Two methods of fixing roofing sheets. Fig. 1, the lightest and most common method. Cost of covering and fixing 3s. 7¼d. per sq. yd. Fig. 2, an insulated roof using 7 x 3 purlins. Composite purlins can also be used. Cost, including purlins and fixing, 12s. 7d. per sq. yd.

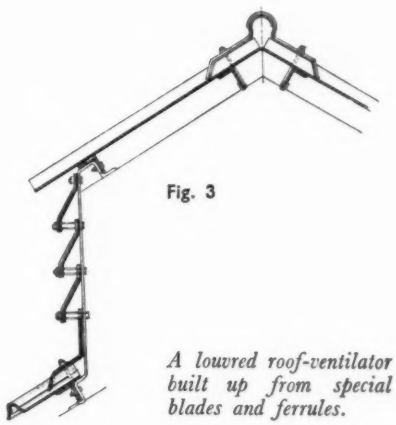


Fig. 3

A louvred roof-ventilator built up from special blades and ferrules.

Type	Length	Width	Depth	Thickness	Side lap	End lap	Max. purlin spacing	Max. side rail spacing	Lbs. weight per sq.	Colours	Price per sq. yd. grey	
											Delivered London	Fixed London
1	3′ 0″ to 10′ 0″ in 6″ increments.	2′ 6″	1″	¼″	4½″	6″	3′ 0″	5′ 0″	308½	Grey, red, and russet-brown. Blue to order.	2s. 4¼d.	3s. 7¼d.
2	3′ 0″ to 10′ 0″ in 6″ increments.	3′ 5½″	2⅛″	¼″ to ⅜″	2″	6″	4′ 6″	6′ 0″	311	Grey, red, and russet-brown. Blue and green to order.	2s. 6¾d.	3s. 7¼d.
3	4′ 0″ to 10′ 0″ in 6″ increments.	4′ 2½″	2¼″	¼″ to ⅜″	2⅜″	6″	4′ 0″	4′ 0″	320	Grey, red, and russet-brown	2s. 6¾d.	3s. 7¼d.
4	4′ 0″ to 10′ 0″ in 6″ increments.	3′ 8″	2″	¼″	4″	6″	4′ 6″	6′ 0″	304	Grey, red and russet-brown	2s. 6¾d.	3s. 7¼d.
5	4′ 0″ to 10′ 0″ in 6″ increments.	4′ 0″	2¼″	¼″	3″	6″	4′ 6″	6′ 0″	315	Grey, red, and russet-brown	2s. 6¾d.	3s. 7¼d.
6	6′ 0″	3′ 8″	2″	¼″	4″	6″	5′ 6″	5′ 6″	331	Grey, red, and russet-brown	3s. 9d.	4s. 9d.
7	10′ 0″	4′ 0″	3½″	⅜″	3″	9″	2′ 3″	—	500	Grey	6s. 7d.	8s. 8½d.
8	8′ 0″	3′ 0″	3″	¼″	—	—	8′ 0″	—	1,400	Grey	7s. 3d.	9s. 6d.
9	6′ 0″	2′ 6″	2″	¼″	—	—	6′ 0″	—	800	Grey	—	—

Note.—Add from 11 to 15 per cent. for coloured sheets, red and blue being the least and green the most expensive.

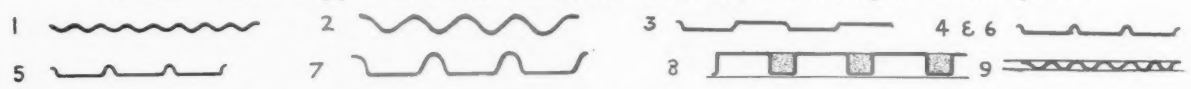


Fig. 4: Table of sizes and costs of common types of roofing sheets and slabs; with diagrammatic sections.

terminal sits. Dead and opening roof lights may be interlaid in the same way. Dormer ventilators of very good design are made in a single piece with a roofing sheet, giving a louvred opening about 20 ins. square. They have no corrodible parts whatever, and again require no flashing. Special extractor type ventilators are mentioned later.

Curved sheets for segmental roofs can be made to requirements, the minimum radius being 4 ft. 6 ins. in most instances. Sheets with curved ends for use at the break of mansard roofs, etc., are also available to order.

Coverings for Flat Roofs.—Nos. 7, 8 and 9 in Fig. 4 are intended primarily for use on flat or semi-flat roofs, though they may be laid to a steep pitch if necessary. No. 7 is simply a large-scale corrugated sheet with a 3-in. turn-down at one end which forms a drip and enables the sheet to be laid with a fall of as little as 2 ins. in 10 ft., though there is, of course, a 3-in. step at the end of each sheet.

In No. 8, asbestos-cement sheets are utilized to form permanent centering for small reinforced-concrete beams. The three troughs in each unit are filled with concrete at the factory to a point about 4½ ins. from each end, the reinforcement being left protruding. The units are laid flat on joists at 8 ft. centres, and the projecting rods are wired together. Rods are then laid in the side channels, and the whole of the troughing filled flush with concrete. This construction will safely withstand a distributed load of 200 lbs. per sq. ft. with a deflection of not more than $\frac{1}{10}$ in. Units can be made to span 10 ft. if desired.

A very interesting development of the "stressed skin" system, now widely used in aeroplane construction, is No. 9. A sheet of corrugated asbestos-cement is held firmly by adhesion between two flat sheets, forming a sort of box girder in which the flat sheets are the flanges and the corrugated sheets the webs. Although only 2 ins. thick, these panels will support over a span of 6 ft. a load of 50 lbs. per sq. ft. with a factor of safety of 4. Experiments conducted in America with plywood units used the same principle and showed that astonishing strengths can be developed by members of very small depth and cross-sectional area. There should be an important future for this type of roofing, which can be quickly laid by unskilled labour, and it would be interesting to experiment with the units as walling. (See page 976, bottom.)

Both the two foregoing systems have the advantage that their construction provides a certain amount of dead air space, which decreases thermal conductivity, while the soffit is flat and offers a good surface for paint or distemper. The upper surface can, of course, be screeded and covered with asphalt or other material as desired.

Slates and Pantiles.—The chief advantage of asbestos-cement slates is the saving in cost which they make possible. The slates themselves are cheap, and

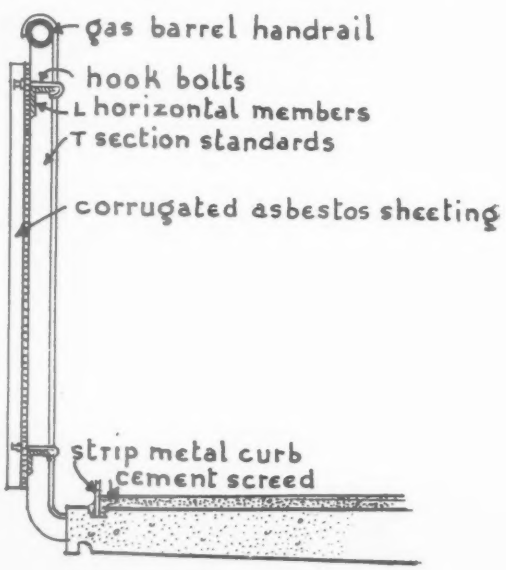


Fig. 5.

Corrugated asbestos-cement sheeting used as a balcony front at Denham Film Laboratories by Messrs. Walter Gropius and Maxwell Fry.

their light weight allows considerable economy in roof timbers, a spacing of 2 ft. 6 ins. centre to centre being possible for rafters, by arrangement with the local authority. When laid with a 3-in. lap, the weight of 24 ins. by 12 ins. slates is about 400 lbs. per square. Diagonal slating is even lighter, honeycomb slates with a $2\frac{3}{4}$-in. lap weighing 224 lbs. per square.

Rectangular slates are made in sizes 24 ins. by 12 ins., 20 ins. by 10 ins., and $15\frac{3}{4}$ ins. by $7\frac{7}{8}$ ins., while the diagonal patterns are $15\frac{3}{4}$ ins. by $15\frac{3}{4}$ ins. The colours available include blue, red, green, russet-brown, brindled, green-brown, and brown-stone. Prices for natural grey slates are £13 12s., £10 4s. 3d., £6 3s. 9d., and £11 15s. per 1,000, respectively, delivered in 2-ton loads. The cost of good quality Welsh slates is about twice these figures. Pantiles are obtainable in two sizes: $15\frac{3}{4}$ ins. by $9\frac{7}{16}$ ins. and approximately $15\frac{3}{4}$ ins. by $13\frac{1}{4}$ ins., in green and russet-brown. They are laid to a 4-in. lap and weigh about 362 lbs. per square for the larger size.

Walling

Corrugated Sheets.—For sheathing the exterior walls of large buildings which have to withstand considerable wear corrugated sheets are most suitable. Their section gives them much greater strength than flat sheets and the distance between supports may therefore be increased. They are fixed to steel or timber framing in the same way as to purlins, with hook bolts or drive screws, and if the framing is designed to utilize standard sheets considerable savings in material and labour may be made.

The sheets are normally laid with the corrugations vertical (Fig. 8), but for greater convenience or æsthetic effect it may be desirable in particular instances to use horizontal corrugations. The strip of wall beneath a long band of windows may be easily covered in this way with sheets of the correct width and the maximum length obtainable.

A similar application is shown in Fig. 5, where corrugated sheets have been used horizontally on balcony fronts some 300 ft. long. The natural grey of the asbestos-cement requires no maintenance and blends well with the white walls and light yellow paintwork.

For internal work corrugated sheets offer decorative possibilities which are not often utilized. Some form of stiffening at right angles to the corrugations is all that is needed to render the material usable for detached screens or for partitions. Painted or other applied decoration could be designed in such a way as to take advantage of the undulations of the surface. Fig. 6 shows the interest of light and shade obtainable by even the simplest treatment.

Flat Sheets.—British Standard Specification No. 690/1936, mentioned above, provides that flat sheets shall not vary from the prescribed linear dimensions by more than one quarter of one per cent., and that the difference between the theoretical and actual heights of 20 stacked sheets shall not be more than 10 per cent. The average breaking load of six specimens of $\frac{1}{4}$-in. sheet, size 10 ins. by 10 ins., tested wet over a 9-in. span, must not be less than 88 lbs. when the load is applied parallel to the fibres, or 123 lbs. when it is applied at right angles to them.

The standard sizes specified are 8 ft., 7 ft., 6 ft. and 4 ft. by 4 ft., and 6 ft. by 3 ft., in thicknesses of $\frac{5}{32}$ in., $\frac{3}{16}$ in. and $\frac{1}{4}$ in., with additional thicknesses of $\frac{5}{16}$ in. and $\frac{3}{8}$ in. for the 8 ft. by 4 ft. sheet. No difficulty will be experienced in obtaining sheets in any of these sizes and conforming in all respects with the specification. The 8 ft. sheets are obtainable also in $\frac{1}{2}$-in. thickness.

The above are made in natural grey colour only, but for interiors which demand a higher quality of finish there are glazed and coloured sheets which offer many advantages. They are easily cleaned, wear well and are less productive of condensation than glazed tiling. In timber framed buildings especially, where one is usually reluctant to introduce the plasterer solely to carry out screeding for glazed tiles in bath rooms and kitchens, these sheets

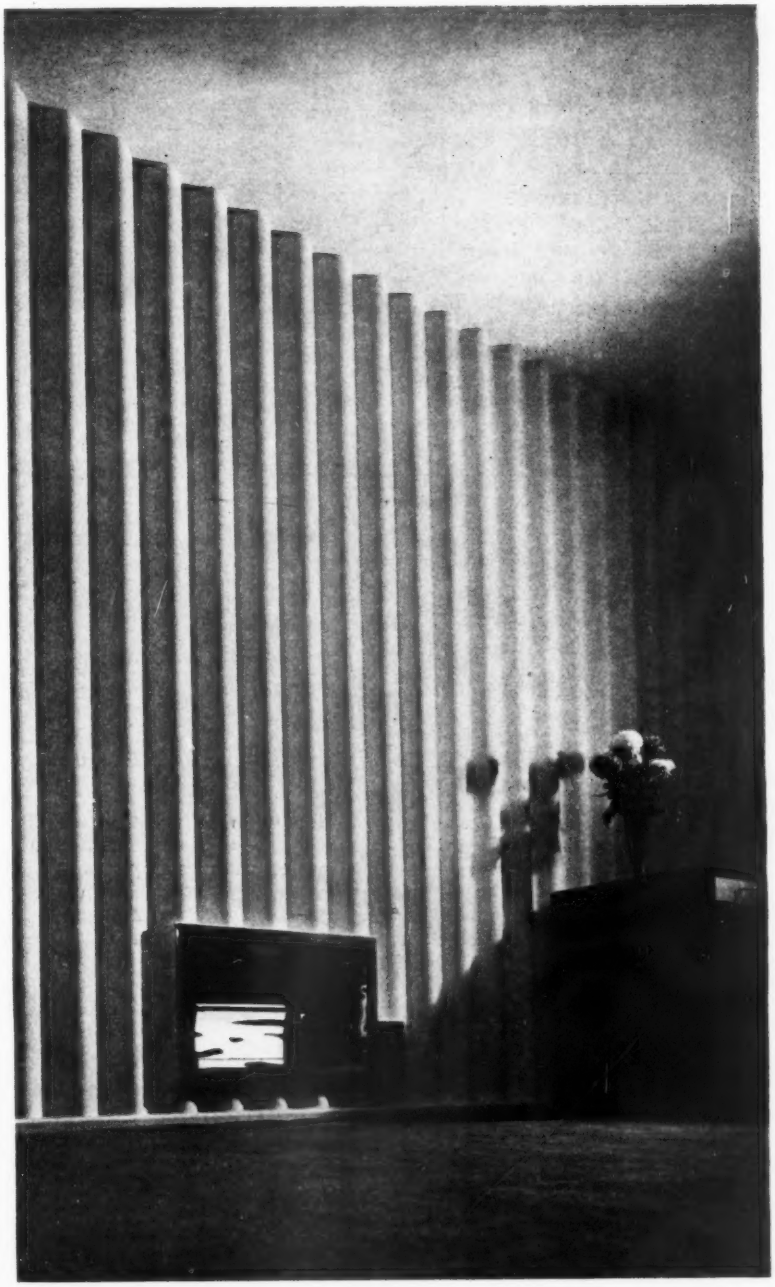


Fig. 6. Asbestos-cement corrugated sheets used for decorative purposes. Painted large-pitch sheets in a house at Bristol by F. R. S. Yorke and Marcel Breuer.

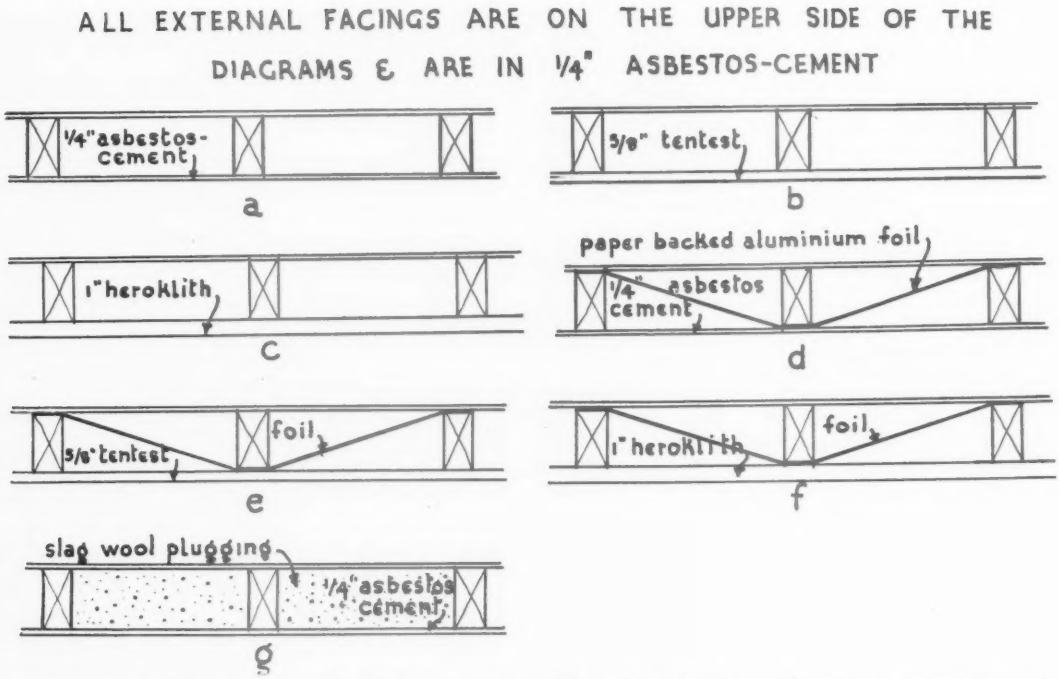


Fig. 7. Types of wall sheathing using asbestos-cement sheets in conjunction with various arrangements of thermal insulating materials. Approximate prices, per sq. yd., including external cover strips but no paint or other finish: (a) 10s. 2d.; (b) 11s. 3d.; (c) 10s. 11d.; (d) 11s. 10d.; (e) 12s. 11d.; (f) 12s. 7d.; (g) 13s. 5d. Heat transmission in B. T.U's per hour per sq. ft. per °F. temperature difference: (a) 0·4; (b) 0·35; (c) 0·23; (d) 0·25; (e) 0·24; (f) 0·18; (g) 0·09.

provide a satisfactory alternative. The highly glazed types have a surface hard enough for use as counter tops or dadoes. Colours include white, plain pastel shades, and numerous stippled, mottled, shaded, and patterned finishes, as well as reproductions of wood graining. There is also a wide range of imitation marbles, the surfaces of these sheets having a less glossy finish more pleasing in some situations.

Other Uses

Sheets cut to special sizes for splash-backs, bath panels, fireplace surrounds, table tops, door panels, etc., are easily obtainable, and the edges can be finished to match the sheet. The $\frac{11}{16}$-in. thick marbled sheets, faced both sides, are very suitable for use as partitions to w.c. or shower cubicles.

Among the accessories supplied in asbestos-cement to match the sheets are square and rounded external and internal corner pieces, coving, and capping suitable for finishing dadoes or window boards. These accessories are not available with all types of sheet, and catalogues should therefore be consulted if their use is being considered. The makers also supply wood cover strips, beads and dado mouldings cellulosed in plain colours to match the sheets.

For inside walls and ceilings butt joints without a cover strip may be used if desired. As the sheets do not expand and contract with changes in the moisture content of the atmosphere the joints may be filled, stopped and rubbed down. A strip of adhesive linen may be desirable on plain grey sheets which are to be finished with distemper or paint. This method, however, depends upon the rigidity of the structure.

Studs may be spaced at 16-in. or 24-in. centres, depending on the size of the sheets and their thickness. Sheets of $\frac{3}{16}$-in. and $\frac{1}{4}$-in. thickness may be used for internal work, but $\frac{1}{4}$-in. to $\frac{3}{8}$-in. is more suitable for exteriors. It is inadvisable to use the thinner sheets in positions where they are exposed to kicking or other blows. All joints must

Asbestos - cement used in industrial buildings. The illustration shows the large range of special-purpose section and fittings now available. Ventilator - cowls, ridges, hips and valleys are all of asbestos-cement.

be backed by studs, and nails should not be more than 12 ins. apart. Over intermediate studs this spacing may be increased to 24 ins.

For use with glazed and coloured sheets screws with detachable chromium plated heads are supplied, and when they are used the joints may be filled and painted to match the sheets. Instead of the screws oval-headed nails can be used, with heads sunk below the surface and holes filled and painted.

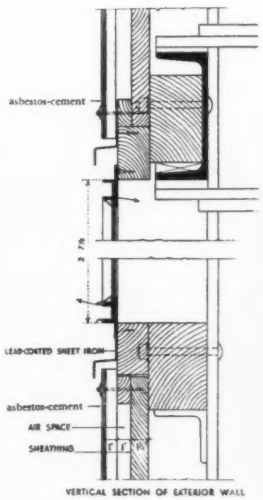
For external work fixing may be by means of bolts to steelwork, but it is more usual to nail to timber framing. The joints are normally butted and covered with strips of wood or asbestos-cement, the latter being obtainable cut to convenient widths. Horizontal joints should be flashed with a strip of zinc or bituminized felt about 1½ ins. wide, fixed beneath the upper sheet, carried through the joint, and over the lower sheet, the whole being hidden by the cover strip.

Asbestos-Cement Reinforced Plywood.—This product has been obtainable in England for some years, but is not yet widely known, though it has been used a great deal in Germany. It consists of plywood faced on one or both sides with asbestos-cement, the total thickness varying from $\frac{5}{16}$ in. to 1½ ins. Its chief advantages are that it can be nailed or screwed in the same way as plywood, that it is immune from dry rot and almost unaffected by acid, that its thermal conductivity is less than that of asbestos-cement sheets, and that it is more resistant than plywood to fire and to impact.

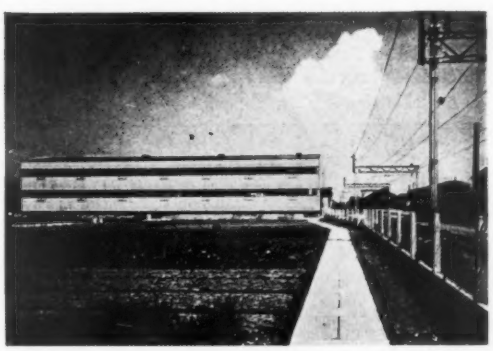
The material is non-inflammable within the definition of British Standard Specification No. 476, and tests made by the National Physical Laboratory show that the thermal conductivity (per 1 in. thickness) is only 0.84.

The standard sizes of the sheets are 8 ft. by 4 ft. and 6 ft. 8 ins. by 3 ft. 4 ins., and they may be obtained in natural grey or in several coloured granite finishes which are by no means unpleasing. The surface, consisting of mineral granite pressed on the asbestos-cement, is perfectly matt and integral with the backing. As it extends for an appreciable distance below the surface it should wear admirably. Scratches which are too severe to be removed by washing may be rubbed down with sandpaper. Coloured sheets with a very high gloss finish will shortly be put on the market.

This material may safely be used instead of high density fibreboard for external work, its edges being sealed with special damp, fire, and acid resistant cement supplied by the makers. It is also a good base for veneer, having less moisture movement than plywood.



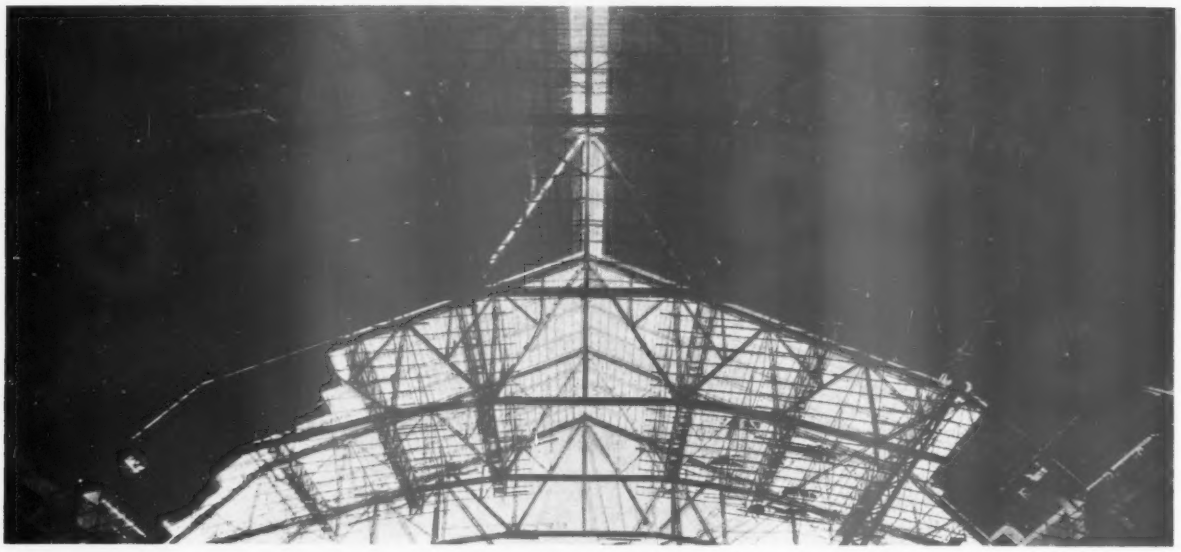
A seed factory in Denmark in asbestos-cement. A detail, general view and section through wall sheathing.



Flooring

Rubber floor tiles with a rigid core of asbestos-cement are made in sizes 12 ins. by 12 ins., 9 ins. by 9 ins., 9 ins. by 4½ ins., 6 ins. by 6 ins., 6 ins. by 3 ins., 6 ins. by 2 ins., and 3 ins. by 3 ins., with diagonal halves of the square tiles. The thickness of the tile as supplied for use on wooden sub-floors is $\frac{3}{8}$ in., giving a total of ½ in., including mastic. For concrete floors the tiles are supplied with a keyed back which increases the thickness slightly; a different method of bedding is employed and the total thickness is $\frac{7}{8}$ in. Flat skirtings 8 ins. deep with rounded upper edges, 2 ins. radius cove skirtings, and stair nosings are supplied.

The advantage of the asbestos-cement backing is that it prevents creeping of the rubber, and allows the tiles to be laid on a wood sub-floor without the necessity of using plywood to cover the joints of the boards. The rubber is carried down the edges of each tile, a $\frac{1}{16}$ in. joint being left between them. There seems to be a tendency for the edges to rise slightly above the centre of the tile, and this is noticeable in oblique light, although there is no



A progress photograph of the roof of the main exhibition hall at Earls Court. The roof covering is of corrugated asbestos-cement sheeting.

danger of their rising sufficiently to be kicked up.

Rigid rubber slabs in sizes up to 6 ft. by 3 ft. can be obtained to order in colours matching the tiles. They are extremely useful for use as bath panels, being easily fixed to a wooden frame, and may also be used as splashbacks for baths or lavatory basins.

Roof Paving. A recent development of interest consists of asbestos-cement paving tiles intended to increase the solar reflectivity and improve the appearance of asphalt roofs. Tests carried out by the Building Research Station showed that when air temperatures ranged from 80 degs. to 86 degs. F. on a hot, sunny day, the temperature beneath unprotected asphalt rose to 115 degs. F., whereas when covered with these tiles it never rose above that of the air itself.

The tiles are 12 ins. by 12 ins. in size, with rounded edges. Their cost is 3s. 3d. per yard super for $\frac{5}{16}$ in. thickness and 3s. 10d. per yard for $\frac{3}{8}$ in. thickness.

Soil Pipes and Rainwater Goods

Diameters of $3\frac{1}{2}$ ins. and 4 ins. and lengths of 3 ft., 4 ft., 6 ft., and 10 ft. have been standardized for soil pipes, in accordance with British Standard Specification No. 582-1934. The weight of the $3\frac{1}{2}$ ins. pipe is $12\frac{1}{2}$ lbs. per yard, and of the 4 ins., $13\frac{1}{2}$ lbs., so that a 10-ft. length of asbestos-cement soil pipe weighs about the same as a 6-ft. length of cast iron. Among the accessories are swan necks in nine different projections, from 3 ins. to 24 ins., and bends and branches in a similar variety of lengths and angles. Soil pipes are dipped in natural bitumen. Joints should be made with a tarred gasket, bituminous compound, and flushed up with caulked cement. Heavy type black clips are supplied for attachment to walls.

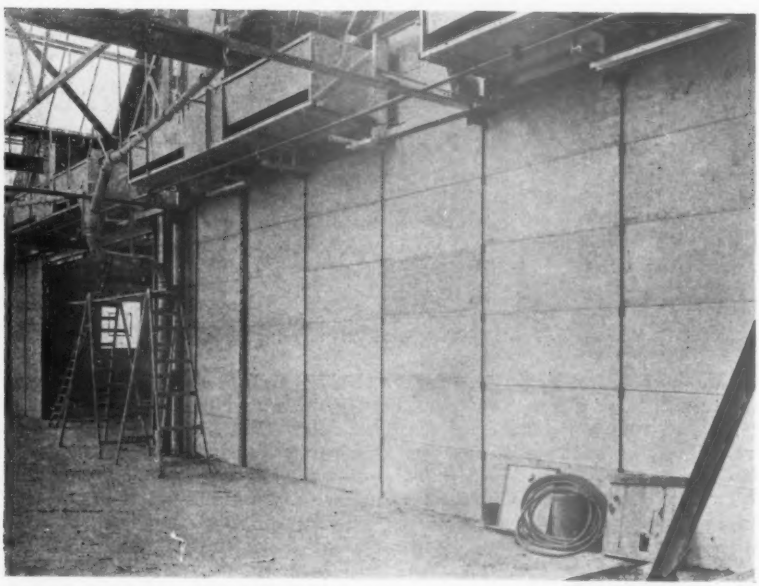
Rainwater goods are in accordance with British Standard Specification No. 569/1934. Ogee and half-round gutters are obtainable in sizes from 3 ins. to 8 ins. Rainwater pipes are in 6 ft. lengths, with diameters from 2 ins. to 6 ins. The design of the standard rainwater heads will not appeal to all architects, but it is possible for them to be made to detail without any great expense. There are a number of types of valley and boundary wall gutters.

Joints in gutters and piping should be made with a special bituminous compound supplied by the makers. For fixing, several kinds of brackets and clips are available, both galvanized and ungalvanized.

Flue Pipes and Fittings—Ventilation Goods

The relatively low thermal conductance of asbestos-cement when compared with metal minimizes the condensation troubles so often met with in steamy atmospheres. Chilling of the flue gases is reduced and updraught maintained. Special flue pipes are made to resist the higher temperatures reached by anthracite stoves, and for the conveyance of acid fumes. Flue pipes are also obtainable finished outside with a special glaze which is pleasant in appearance and easily kept clean.

Sizes from 2 ins. to 12 ins. internal diameter are standard, though larger



A partition at the Handley Page factory. The blocks are of the hollow type shown on page 972, No. 9, and are used as a filling to a light steel frame.

ones can be made to order. Lengths range from 1 ft. to 6 ft., rising in increments of 1 ft., the length of the socket not being counted in the length of the pipe.

Several different angles, with sharp or easy turns, are stocked for bends, as well as numerous junctions. The larger diameter pipes and accessories will be found very suitable for use as dust chutes for flats. Tees are made for connection to the chief makes of gas cookers, and there are oval-round adaptors and elbows for standard gas fires. The range of cowls and terminals —all of neat appearance—includes special anti-downdraught caps, both for fixing above the roof and on the wall face, while there are adaptors for "Nautilus" flue blocks which may thus be terminated above the roof in asbestos-cement. There are a number of different types of bafflers for connection to geysers to prevent backdraught. Cleaning doors can be fitted to almost any of the standard bends, etc., if required.

Though they are more expensive than those of sheet metal, ventilating ducts of asbestos-cement have obvious advantages in that they reduce heat losses, do not conduct sound to the same extent as metal, can be built into walling, buried below ground, or exposed to the open air, and require no maintenance whatever. Their skin friction is considerably less than that of brickwork ducts. There are no standard sizes, but any required shape can be made, either in rectangular or circular section. Complicated junctions, etc., usually present no difficulty. An anti-acid treatment of bitumen can be given if desired.

Ventilating canopies for use over cookers and in connection with dust extractors are also made to order. In these positions the avoidance of condensation is again a great asset.

As well as the dormer ventilators and built-up louvre ventilators mentioned under *Roofing*, there are ventilators suitable for industrial buildings which may be fixed in roofs of any construction. The diameter of the extract pipe varies from 6 ins. to 24 ins., and there is a square base intended to fit over a timber kerb trimming the roof opening, thus making a satisfactory job without the necessity for lead flashing in most instances. These ventilators are well designed, both for appearance and efficiency. They have no moving parts, the fixing screws are brass, and the stout metal straps used are heavily galvanized (page 974).

Architectural Sundries

Asbestos-cement draining boards are increasing in popularity owing to their low cost and good design, which is admirably adapted to the capabilities of the material. They are made in 18 sizes, with edges turned up on three sides, and a down-turned lip on the other side which fits over the edge of the sink so that there is no risk of water getting underneath. Both natural grey and white enamelled finishes are available, and the only drawback of these boards appears to be that they are somewhat noisier than metal ones. Metal brackets with rubber buffers can be supplied by means of which the board will support itself from the sink, but it is preferable if possible to support the end on a wooden rail, a ledge being provided on the underside to fit over it.

Geyser shelves are another little-known product which would frequently be useful to architects. They are quadrant-shaped, to fit in a corner, the edges are holed for fixing, and there are two holes for the passage of the gas and water pipes.

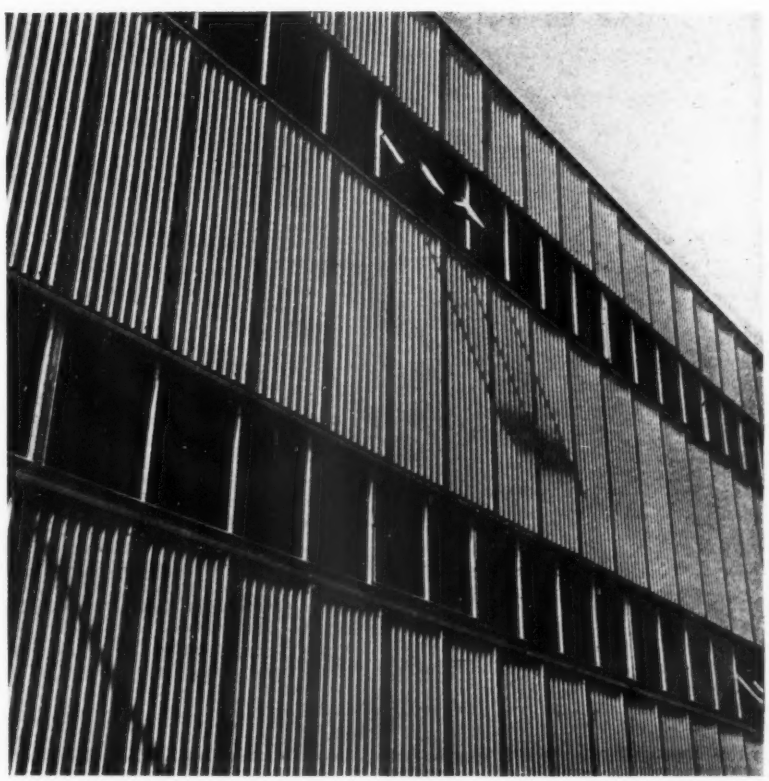
Special radiator bases and hearths are manufactured which may sometimes be found useful. Unfortunately, they are usually treated with an applied pattern in imitation of brickwork.

Engineering Products

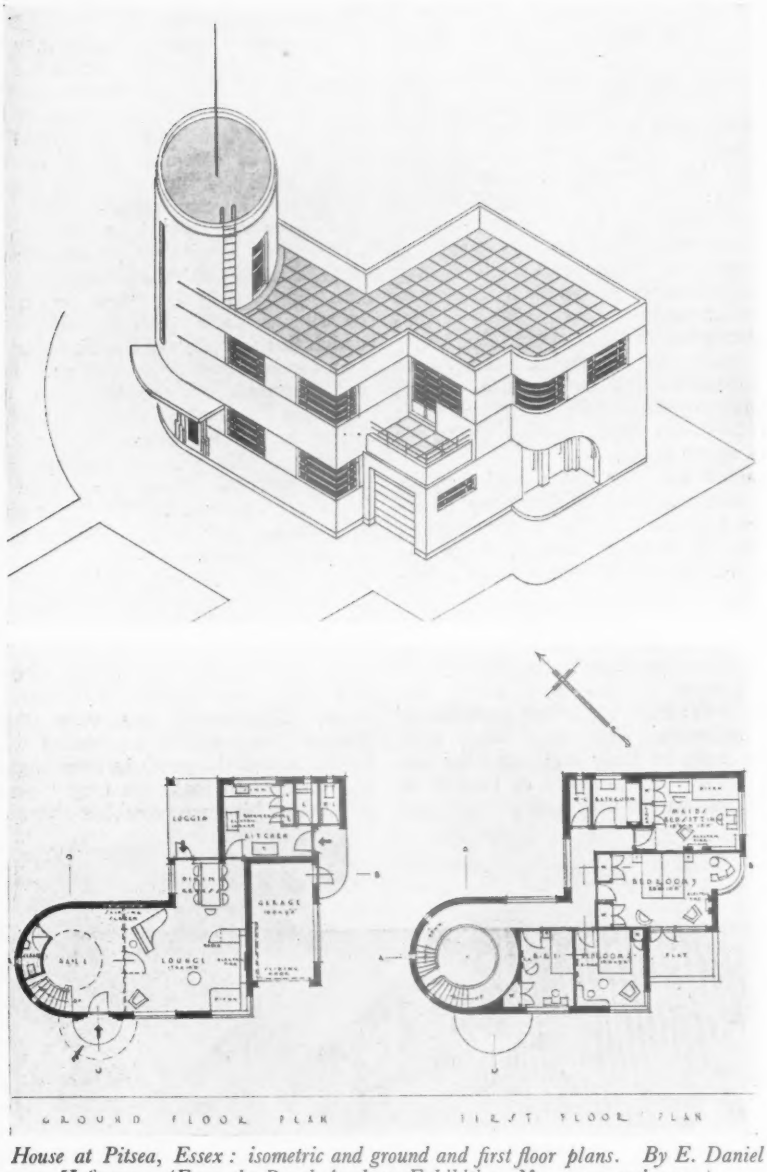
Asbestos-cement pressure pipes for the conveyance of gas and water are among the most important products of the industry. They have been used since 1913 in Italy and are now approved by the Ministry of Health in England, where they are widely used by local authorities and by industry. Their great advantage is that they are not liable to internal corrosion or incrustation. Their insulating qualities are valuable for the conveyance of hot liquids, and their light weight (less than half that of cast-iron pipes) enables them to be hung on light superstructures if necessary. They are absolutely unaffected by salt water.

The pipes are made in accordance with British Standard Specification No. 486-1933, in diameters from 2 ins. to 18 ins. with external diameters which fit the sockets of British Standard Cast Iron Pipes and Specials. The working pressures are 100, 200, 300 and 400 ft. head of water, the pipes being tested to twice the working pressures. The smaller diameter and lower pressure pipes are made in lengths of 3 metres, and the larger pipes and those for higher pressures in lengths of 4 metres.

Among other products likely to interest the engineer rather than the architect are cable troughs and conduits. Both are suitable for burial below ground, conduits being made in lengths of 6 ft. and 10 ft., with bores from 2 ins. to 6 ins. The troughs have very simple flanged joints which are sealed with bitumen, and the conduits have spigots and sockets to make an easy "push-fit" with a bitumen or rubber ring seal.



Another detail of the seed factory in Denmark. The sheets are overlapped to avoid the necessity for a cover strip, and the overlaps are centred on the glazing bars.



House at Pitsea, Essex: isometric and ground and first floor plans. By E. Daniel Hofmann. (From the Royal Academy Exhibition, Nos. 1293 and 1295.)

L I T E R A T U R E

ARCHITECTURE AND THE B.B.C.

[*By E. H. W. ATKINSON*]

B.B.C. Annual 1937. London: The British Broadcasting Corporation. Price 2s. 6d.

THE B.B.C. managed to get through 1936 with singularly little mention of architecture, singularly little direct encouragement of the good causes for which many besides architects and town planners are working—indirect encouragement would in any case be impossible to compute—and, to judge from the *Annual*, with singularly little notion that here is a pronounced and serious gap in its generally praiseworthy activities.

The Corporation carries on, too, without benefit of architect in the framing of its programmes and policy. On the evidence offered here, there is every reason why the B.B.C. should try to capture a few architects, or, alternatively, why a few architects should try to capture the B.B.C.

To take programmes first. In 1936, I find from diligent examination (E. and O.E.) of the *Annual*, that the R.I.B.A.'s Exhibition of Everyday Things was the subject of a News Talk, that Mr. Maxwell Fry gave from the Northern Ireland Regional Station a series of talks on Town Planning, under the auspices of the Government of Northern Ireland, that the Crystal Palace Fire was described by an observer, and that in the Broadcasts to Schools, Mr. G. M. Boumphrey spoke on "Your Home and Mine," a series that employed mainly the architectural approach. So much was good. But the lack of architectural contribution to the general programmes is remarkable—and reprehensible.

One looks about, therefore, for someone to reprehend. It might properly be the B.B.C. for not approaching the architect—or the architect for not approaching the B.B.C. Whichever way it may be, there must clearly be a lack of appreciative contact. Yet the advantages to both from closer contact would so obviously be large. The influence of architecture on daily life is even more pervasive than that of the B.B.C.

Means to improve contact are fortunately almost equally obvious. The Corporation has provided itself with an impressive series of Advisory Councils and Committees, to which several pages of the *Annual* are devoted. I apologize in advance to anyone whose name in the lists given has not struck an architectural chord in my memory, but these lists do notably lack architects. In fact, I believe that the only name whose bearer might in any sense represent architecture—and well he would do it—is the Earl of Crawford and Balcarres; he sits on the General Advisory Committee. The Adult Education Advisory Committee and the several Area Councils, unless I do someone an injustice, are without architect members. But they would provide an admirable field for the architect in a consultative capacity.

Television, the new branch of the B.B.C.'s activities, offers a little better promise. The service opened on November 2. By December 12, Mr. John Gloag and Mr. Serge Chermayeff were before the camera discussing "The Modern House." Current indications are that the televisability, if that is the word, of architectural and cognate subjects, has been recognized by the Television Department. But what about an Advisory Council on Television—*with* benefit of architect?

Elsewhere than in the parts of the *Annual* devoted to programmes and policy, the architect will find interesting reading. Four new transmitting stations have been or are being opened, the Empire short-wave station at Daventry is being enlarged, and there are two new studio headquarters under construction in the provinces.

Studio design is the subject of an interesting section. The tendency, since the microphone has been brought to its present standard of quality, is for an orchestral studio to approximate, as regards acoustical design, to an ideal concert hall. The B.B.C. may well have produced for itself such a chamber. May the knowledge of how it has been produced be spread among architects. The newest thing in studios is known as of the "live end—dead end" type. Roughly half the studio, that which accommodates the orchestra itself, is free of acoustical treatment on floor, walls or ceiling, all the absorption necessary being concentrated (as though it were an audience) in the other half of the studio, where the microphone is normally placed.

TRADE NOTES

[EDITED BY PHILIP SCHOLBERG]

Herd Instinct

EAT more fish — fruit — bread — potatoes—eat more anything, in fact, as long as there is a National Council of interested parties ready to fork out the money for publicity. Step by step we are being bludgeoned into eating a lot more of a whole lot of things, on the grounds, often enough, that it will make us thinner.

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Milk joined in this profitable scheme some time ago, and is now being boosted by the dance bands in one of the most excruciatingly jiggety tunes I have ever heard, with words that make one blush for the intelligence of humanity. And I hear that the prince of revue producers has been persuaded to include a song about another drink in his Coronation edition.

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Not all collective publicity is so crudely done, however, for I remember an enchanting booklet, produced in the early days of the Copper Development Association, which proved conclusively that poisoning from copper plumbing simply didn't exist, clinching the argument by maintaining that if it *did* exist it was probably good for you anyway.

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All of which has nothing to do with my subject, which is milk-bars and their equipment. For these things are springing up all over the place, and, after the preliminary rush of novelty, seem to be settling down to a fairly steady trade. Steady enough, anyway, for Frigidaire to have produced a range of cooling cabinets and fittings, one of which is shown in the illustration at the head of these notes. The drum on the left holds five gallons of milk and has a pump (stainless steel) for serving it; next door to it is another 5-gallon drum for storage and cooling, and beyond it are three 4-gallon ice cream containers. In the rack above are two ranges of 4-pint "syrup pumps" which hold those coloured liquids which are used to give a slight kick to otherwise innocent milk.

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The fitting shown above is fairly typical of the whole range of different units, which have been standardized at a height of 2 ft. 7½ ins., with a depth from front to back of 2 ft. 4 ins., so that the whole counter can easily be extended by adding another unit. The smallest unit is 4 ft. 6 ins. long and holds 10 gallons of milk and 4 of ice cream; the largest is 8 ft. 4 ins. long and holds twice as much of each, while some types have a built-in refrigerator cabinet as well. Finish is stove enamelled steel sheet on the side and ends, and the top is stainless steel: insulation is by 4 ins. of compressed cork.

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Cooling is by brine tanks, which are themselves cooled by a normal compression unit and fittings, and Frigidaire have been making refrigerators for long enough to know how to make them work. For the efficiency of these particular units after prolonged use I can give no reliable information, but I have actually penetrated into a milk bar where the cooling was by Frigidaire, and the milk was cold and tasted like milk. Under cross-examination, one of the staff said, "You turn it on and it works all right." Which seems to me as much as one can reasonably ask of any piece of equipment: serious research could doubtless go further, but I cannot.

Paint Data

A remarkably sensible book on *Surface Protection and Decoration* has just been produced by the Indestructible Paint people, who seem to have taken a lot of trouble to present their information in the most easily accessible way. The manufacturers maintain, and I think rightly, that the ordinary catalogue is only useful provided that the reader *already knows* the materials mentioned and is familiar with their general uses, and they have therefore divided their book into four sections on exterior and interior surfaces, maintenance work and general notes—which seems to me the easiest way for people to find what they want without needless chasing round.

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The booklet very naturally deals with the firm's own products, but they present their information in an honest sort of way, stating clearly which figures (i.e. for coverage) are approximate and which are not. And although they say what their paints will do, they also say what they will *not* do—an excellent technique which produces a very good impression.

Sliding Door Gear

Everybody knows the snags of most sliding-door gears by now, for whether the door is hung from the top or supported from below, there is nearly always some form of guide or track in the floor, either standing up as a rail, when visitors invariably stumble over it, or sunk as a groove in the floor, when it gets full of dust and grit off people's shoes and the door moves in a series of disgruntled jerks instead of a nice smooth glide.

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I have now discovered a firm who get over this difficulty in rather a neat way, in which I can see no obvious snags. The sketch on the next page shows how it works: the weight of the door is taken at the bottom, and the floor track consists of a U-section steel channel, inside which there is a hardwood former surrounded by rubber, the upper surface of which is flush with the floor. The upper surface of the hardwood former is grooved, and there is a corresponding rib in the face of the rollers on the bottom of the door. This rib depresses the rubber covering and is therefore guided by the depression in the top of the hardwood former, while the weight of the door is taken by the treads of the wheel on each side of the central rib. Normally, of course, the rubber covering is flat and flush with the floor and offers no obstruction: nor can any dirt get into the inner groove.

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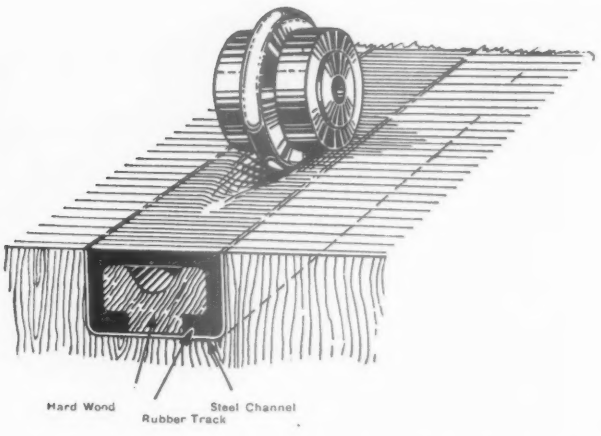
In garages, I imagine that the presence of oil won't do the rubber very much good and it will presumably need replacement from time to time. But rubber lasts surprisingly well even under maltreatment, and the necessary upkeep is probably worth while from the point of view of silence alone—try shutting the average sliding door to a garage late at night and see how much noise it makes. This device is suitable for doors weighing up to 1 ton apiece, and the firm also makes a completely different top hung sliding gear for doors of 120 lb. weight and less.



Sliding door gear, described in the note on the previous page.

The manufacturers claim a saving of anything up to 80 sq. ft. of floor space in the average house, and while this must be, strictly speaking, a justifiable claim, it is a moot point exactly *how* much of it is worth saving, for the space normally covered by a door swing generally has to be kept clear for traffic purposes and a paper gain may disappear in practice. Not, of course, that this makes the slightest difference to the fact that this particular track has several good points. Sliding doors in the house are often advocated as a solution to a whole lot of evils, and they can well be a godsend when the swings of different doors and cupboards get all tangled up. But I believe that the space-saving advantages are largely illusory, at any rate until our minimum plans get a lot more minimum than they are now.

Addresses

Frigidaire, Ltd., Edgware Road, The Hyde, London, N.W.9.

The Indestructible Paint Co., Ltd., Cleopatra Works, Park Royal, London, N.W.10.

Silent Gliding Doors, Ltd., 38 Ingate Place, London, S.W.8.

LAW REPORT

LIABILITY FOR FATALITY FROM FALLING TREE BRANCH

Shirvell v. *Hackwood Estates Co.—King's Bench Division.—Before Mr. Justice Greaves-Lord*

THIS action raised a point of interest as to the liability of landlords for an accident due to a falling tree branch. Mr. C. Shirvell, of Hackwood Farm, Basingstoke, was the tenant of the defendants, the Hackwood Estates Co., who also held land adjoining plaintiff's farm, on which stood a belt of beech trees. One of the boughs of one of the trees overhung the plaintiff's land, and plaintiff's case was that the bough fell on one of his workmen and killed him. The result was that plaintiff became liable to the widow to pay her £273 under the Workmen's Compensation Act, and this sum he claimed from the defendants as an indemnity.

Mr. Henderson, for the plaintiff, contended that that sum his client was entitled to recover from the defendants, on the ground that they were liable in negligence. Plaintiff held the farm under an agreement of January, 1936, and counsel contended that there was a covenant which prohibited the defendants from lopping or cutting trees on or over the plaintiff's land. Under these circumstances what defendants had done was a breach of that covenant and therefore they were liable in the damages plaintiff had had to pay the widow of the man killed. Counsel added that his client had no idea that the tree was dangerous.

Mr. A. D. C. Le Saer, a forestry expert, gave evidence, and stated that the tree in question was only alive from about 16 ft. from its base and needed periodical inspection. He was informed that the branch fell from about 40 ft. up the trunk.

Mr. Hallett, K.C., for the defendants, submitted that in the facts of the case there was no evidence of negligence or liability on the part of his clients. If there was any breach of duty he contended that it was on the plaintiff's part, as he should have known of the condition of the tree, and should have given his labourer warning of the possible danger from it. From the time the plaintiff entered into his tenancy agreement, the tree extended over his land to the same extent that it did at the time of the accident, and the plaintiff must have known of the danger, if any existed. His clients became possessed of the property in February, 1936, and they discovered that the timber had been badly neglected. They had taken steps to consult an expert, and his evidence was that nothing defendants could have done would have prevented the accident, having regard to the circumstances and condition of the trees on the estate generally.

Mr. Reginald C. L. Mould, a forestry expert, gave evidence for the defence.

His lordship, in giving judgment, said it was clear that the defendants, from the time they took possession of the estate, did all they could to have their property properly administered. Full inquiries were made and a thorough examination of the trees was in process of being carried out. It had been urged for the plaintiff that the mere fact that the examination was not extended at the time to this particular tree, was in itself evidence of negligence. That argument left out altogether consideration of the ownership of the defendant company. They could not be charged with anything that had happened during the time of their predecessors. As far as the evidence went defendants had done all they possibly could have done having employed an expert from whom they received two reports. Under these circumstances he came to the conclusion that the plaintiff's case failed. On the facts there was no substantial proof of negligence on the part of the defendants and he therefore entered judgment for the defendants, with costs.

Manufacturers' Items

The Enemies of Timber is the title of a booklet recently issued by the Technical Department of Cuprinol, Ltd., of 27 Horseferry Road, S.W.1, and is obtainable from the firm for the sum of 1s. We print below extracts from the chapter devoted to the death watch beetle. "The death watch beetle belongs to the family *Anobiidæ* (Furniture Beetles) and is probably the best known of the group, owing to the damage it has caused to ancient and historic buildings and the publicity it has received in the press. The beetle measures from one-quarter to five-sixteenths of an inch in length. It is dark brown in colour, and is coated with patches of short yellowish hair, giving it a mottled appearance. The length of the life cycle varies and is still the subject of investigation. It is at least three years, probably four or more.

"It is the adult beetles which make the 'ticking' sound from which they have got their name. It is probable that this ticking is a call between the sexes.

"They emerge in April, May or June, laying their eggs, about seventy in number, in cracks, crevices and old exit holes. The eggs hatch out after a period of from two to eight weeks, according to atmospheric conditions. The grubs burrow into the timber for a period of twenty-four months or even considerably longer. It is during this period that the damage is done to the timber. In the autumn of the second or third year, the larva turns into a pupa or chrysalis. After four to six weeks it casts its pupal skin, but remains in the pupal chamber in the wood until the spring of the following year, when it emerges, leaving a round hole in the timber about one-eighth of an inch in diameter. The beetles are able to fly and thus spread destruction to other parts of the building.

"Oak is the timber commonly attacked by the beetle, though this may occur in most hardwoods and occasionally in very old and dry pinewood. It prefers timber of large size, which is old and thoroughly seasoned. Its presence may be detected by the flight holes in the wood and also by the 'bun-shaped' pellets of wood dust ejected by the larvæ from their tunnels.

"In treating old buildings of historic interest, there is no need for drastic removal of the timbers. These are often of such size as to allow an ample margin of safety. The damaged outer surface may be cut away leaving the heart of the timbers sound and fully able to bear any load that may be imposed on them.

"The Society for the Protection of Ancient Buildings rightly discourages the removal

of such timbers when there is any chance of their preservation."

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Turners Asbestos Cement Co., a branch of Turner and Newall, Ltd., of Trafford Park, Manchester, have just issued a twenty-four page pamphlet illustrating and describing their "Everite" hoods and canopies. These, it is stated, can be supplied to any required dimensions, and in almost any shape, for the removal of fumes, gases and vapours. They are claimed to be suitable for kitchens, bakeries, shops, hospitals, laboratories, etc.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICT (15 MILES RADIUS)

BARKING. *Houses, etc.* The Barking Corporation is to erect 48 houses and 83 flats in London Road.

BATTERSEA. *Flats.* The Battersea B.C. is to erect 90 flats on the Mendip Road area.

KILBURN. *Cinema.* The Middlesex County Licensing Committee has approved revised plans for the erection of the Envoy Cinema, Kilburn.

MIDDLESEX. *Schools.* The Middlesex Education Committee is to proceed with the erection of an elementary school at Victoria Park estate, South Ruislip, to accommodate 900 pupils, and enlarge the following schools: Preston Park school, Wembley (400 places), Woodthorpe Road school, Ashford (100 places), Grange Park school, Hayes (200 places).

POPLAR. *Welfare Centre.* The Poplar B.C. is to proceed with the erection of a maternity and child welfare centre and school treatment centre at Ruston Street, Bow, at a cost of £8,889.

POPLAR. *Electricity Showrooms.* The Poplar B.C. is to erect electricity showrooms in East India Dock Road, at a cost of £37,500.

SHENLEY. *Mental Hospital.* The Middlesex C.C. is to equip the second section of the Shenley Mental Hospital, at a cost of £32,000.

SOUTHGATE. *Houses, etc.* Plans passed by the Southgate Corporation: 10 houses, Lakenheath, Mr. T. S. Rutter; 12 flats, Palmerston Road, Mr. E. W. Palmer; 20 flats, Bowes Road, Payne & Co.

WANDSWORTH. *Crematorium.* The Wandsworth B.C. is to construct a crematorium at Putney Vale cemetery, at a cost of £22,336.

SOUTHERN COUNTIES

BEXHILL. *Flats, etc.* Plans passed by the Bexhill Corporation: Out-patients' department, Bexhill Hospital, Board of Management; 58 flats, Cooden, Mr. F. Scarlett.

BRIGHTON. *Police Headquarters.* The Brighton Corporation has approved plans prepared by Mr. John L. Denman, for the provision of new headquarters for the police, on the old market site, at a cost of £136,000.

BRIGHTON. *Houses.* The Brighton Corporation is to erect 16 houses at an estimated cost of £9,208 at Mount Pleasant Park Place, and 17 at St. John's Place at an estimated cost of £8,079.

WESTON-SUPER-MARE. *Aerodrome.* The Weston-super-Mare U.D.C. is to complete the aerodrome, at a cost of £38,484.

WEYMOUTH. *Aerodrome.* The Air Ministry has purchased 52 acres at Chickerell, Weymouth, for an aerodrome.

WEYMOUTH. *Houses, etc.* Plans passed by the Weymouth Corporation: Six houses, Beaumont Avenue, Messrs. Andrews and Andrews; swimming bath, rear of Kempston Court Hotel, Longfield Road, Mr. C. H. Dickenson; six houses, Weymouth Bay Avenue, Mr. A. A. Hayward; 30 houses, North Road, Wyke Regis, Mr. R. W. Vine.

MIDLAND COUNTIES

BIRMINGHAM. *Science Laboratory.* The Birmingham Corporation is to provide a forensic science laboratory for crime detection, at a cost of £8,405.

STOKE-ON-TRENT. *Sanatorium.* At Stoke-on-Trent Corporation Hospital Committee, the chairman reported on an interview which he and other representatives of the Committee had had with the Ministry of Health in connection with the erection of the new sanatorium at Hanchurch, and the chief architect submitted draft plans of the proposed accommodation. The chief architect was instructed to submit the draft plans to the Ministry and to obtain observations thereon.

STOKE-ON-TRENT. *Laundry.* The Stoke-on-Trent Corporation has approved revised plans for the erection of a laundry at the infectious diseases hospital, at a cost of £7,000.

STOKE-ON-TRENT. *Houses.* The Stoke-on-Trent Corporation is to obtain tenders for the erection of 50 houses at Vivian Road, Fenton, 78 houses at Wilson Road, Hanford, and 220 houses at Meir.

NORTHERN COUNTIES

BLACKPOOL. *Houses, etc.* Plans passed by the Blackpool Corporation: Hotel, South Promenade, Fylde Coast Hotels; eight boarding houses, Tudor Place, Blackpool Pre-Cast Stone Co., Ltd.; 62 houses, Calder Road and Royal Bank Road, R. Fielding and Son; 15 houses, Faringdon Avenue, I. Fletcher, Ltd.; five houses, Henson Avenue, Yates and Walsh; eight houses and shops, Red Bank Road, etc., Render and Seddon; eight houses, St. Martin's Road, Mr. R. Hogarth, assembly hall, Norbreck Road, Blackpool Holiday Camp, Ltd.; ten houses, Ravenwood Avenue, Mr. C. Heyes; cinema and café, Dickson Road, Mr. S. Taylor; 16 bungalows, Collyhurst Avenue, Beardshaw & Co.

BLACKPOOL. *School.* The Blackpool Education Committee is to obtain a site at Stanley Park for a new grammar school.

LANCASHIRE. *Elementary School.* The Lancashire Education Committee has obtained sanction to borrow £47,500 for the erection of an elementary school at Knowsley.

LEEDS. *Cinema.* The Leeds Corporation has sold land at the junction of Woodhouse Lane and Merrion Street to Odeon Theatres, Ltd., for the sum of £54,590 for the erection of a cinema.

LEEDS. *Houses.* The Leeds Corporation has approved plans by the Housing director for the erection of 204 houses on the Corporation estates.

LEEDS. *Educational Centre.* The Leeds Education Committee is to erect an educational occupation centre in Harehills Lane.

LEEDS. *Nursery.* The Leeds Corporation has purchased Spring Bank estate for use as a residential nursery.

MANCHESTER. *Flats.* The Manchester Corporation is to erect 49 flats at Red Bank, at a cost of £23,915.

MORECAMBE. *Aerodrome.* The Morecambe Corporation is to lay out the aerodrome site, at a cost of £13,303.

MORECAMBE. *Houses, etc.* Plans passed by the Morecambe Corporation: Eight houses, Lowther Avenue, Mr. W. Walmsley; six houses, Heysham Hall Drive, Mr. H. E. Shackleton; private hotel, Marine Road, Mrs. M. Bourne; 14 houses, Bartram Grove, Wm. Gardner & Co.; 29 houses, Walton Avenue, Messrs. Widdup and Ladell.

SOUTHPORT. *Extensions.* The Southport Education Committee is to enlarge Birkdale Central Mixed School to increase the accommodation of 400 to a maximum of 960, providing a separate boys' department and girls' department with accommodation of 480 each, and has appointed Mr. L. Barnish as architect for the scheme, and also for extensions at Farnborough Road School.

SOUTH SHIELDS. *Houses.* The South Shields Corporation has approved plans for the erection of 654 houses in Centenary Avenue and Marsden Road.

TYNEMOUTH. *Flats, etc.* Plans passed by the Tynemouth Corporation: Warehouse, lane rear of Brewhouse Bank, Shields Ice and Cold Storage Co.; 135 flats, Percy Square, Sir James Knott Memorial Trust, Ltd.; seven houses, Seacrest Avenue, Cullercoats, A. and E. Brannen.

WAKEFIELD. *Houses, etc.* Plans passed by the Wakefield Corporation: 22 houses, Cotton Street, Mr. W. Emery; sports pavilion, St. John's Avenue, Mr. G. E. Jackson; Sandal Cricket Club, Messrs. Dobson & Gighall.

SCOTLAND

GLASGOW. *Tenements.* The Glasgow Corporation is to erect 247 tenement houses in Paisley Road West and Broomloan Road.

GLASGOW. *Improvements.* The Glasgow Corporation is to undertake improvements at various halls, at a cost of £7,250.

GLASGOW. *Nurses' Home.* The Governors of the Glasgow Royal Infirmary are to erect a new nurses' home on ground at MacLeod Street and Castle Street.

GLASGOW. *Improvements.* The Glasgow Corporation is to carry out improvements at various schools, at a cost of £20,000.

GLASGOW. *Clinics.* The Glasgow Corporation has approved plans for the erection of clinics at Parkhead at a cost of £5,000, and at Possilpark at a cost of £5,500.

THE BUILDINGS ILLUSTRATED

LIBRARY FOR THE UNIVERSITY OF MANCHESTER (pages 954–955). The general contractors were Messrs. G. and W. Smith, Ltd. The sub-contractors and craftsmen included the following: Wm. MacDonald & Co., foundations; Limmer and Trinidad Lake Asphalt Co., asphalt, dampcourses; Caxton Floors, Ltd., hollow tile floors; Buckley Junction Metallic Brickworks, "Red Jacobean" bricks; Empire Stone Co., Ltd., artificial stone staircases; Robinson and Kershaw, Ltd., structural steel; F. Brown and Sons, Ltd., slates; W. Higgins, Ltd., partitions; Pilkington Bros., Ltd., glass; Bromsgrove Guild, Ltd., cast lead; A. M. MacDougall and Sons, Ltd., wood block flooring; Conway & Co., patent flooring and tiling; G. Dawson, Ltd., central heating; Luxfer, Ltd., book stack; Drake and Gorham, Ltd., electric wiring; Standard and Pochin Bros., Ltd., ventilation; Wm. Bailey, plumbing; Shanks & Co., Ltd., sanitary fittings; Laidlaw and Thompson, door furniture and window furniture; Chatwood Safe Co., Ltd., fireproof doors; W. J. Roberts and Sons, Ltd., plaster; Birmingham Guild, Ltd., metal work; G. Macfarlane and Sons, Ltd., carpentry and joinery; Scott Morton and Tynecastle, Ltd., special joinery; F. M. and H. Nuttall, Ltd., stonework; J. and H. Patteson, Ltd., marble; Heal and Son, Ltd., furniture; Etchells, Congdon and Muir, Ltd., lifts; Gent & Co., Ltd., clocks; Earp, Hobbs and Miller, heraldic Coat of Arms.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I. s. d.	II. s. d.
A	ABERDARE ...	S. Wales & M.	1 7	1 2½
A	Aberdeen ...	Scotland	1 7	1 2½
A_1	Abergavenny ...	S. Wales & M.	1 6½	1 2
A_2	Abingdon ...	S. Counties	1 5½	1 1½
A	Accrington ...	N.W. Counties	1 7	1 2½
A_2	Addlestone ...	S. Counties	1 6	1 1½
A	Adlington ...	N.W. Counties	1 7	1 2½
A	Airdrie ...	Scotland	*1 7	1 2½
C	Aldeburgh ...	E. Counties	1 3	0 11½
A	Altrincham ...	N.W. Counties	1 7	1 2½
B_2	Appleby ...	N.W. Counties	1 3½	0 11½
A	Ashton-under-Lyne	N.W. Counties	1 7	1 2½
B	Aylesbury ...	S. Counties	1 5	1 0½
B	BANBURY ...	S. Counties	1 5	1 0½
B_1	Bangor ...	N.W. Counties	1 4½	1 0½
A_2	Barnard Castle	N.E. Coast	1 5½	1 1½
A	Barnsley ...	Yorkshire	1 7	1 2½
B	Barnstaple ...	S.W. Counties	1 5	1 0½
A	Barrow ...	N.W. Counties	1 7	1 2½
A	Barry ...	S. Wales & M.	1 7	1 2½
B	Basingstoke ...	S.W. Counties	1 5	1 0½
A_2	Bath	S.W. Counties	1 6	1 1½
A	Batley ...	Yorkshire	1 7	1 2½
A_2	Bedford ...	E. Counties	1 6	1 1½
A_2	Berwick-on-Tweed	N.E. Coast	1 6	1 1½
A_2	Bewdley ...	Mid. Counties	1 6	1 1½
B	Bicester ...	S. Counties	1 5	1 0½
	Birkenhead ...	N.W. Counties	*1 8	1 3
A	Birmingham ...	Mid. Counties	1 7	1 2½
A_1	Bishop Auckland	N.E. Coast	1 6½	1 2
A	Blackburn ...	N.W. Counties	1 7	1 2½
A	Blackpool ...	N.W. Counties	1 7	1 2½
A	Blyth	N.E. Coast	1 7	1 2½
B	Bognor ...	S. Counties	1 5	1 0½
A	Bolton ...	N.W. Counties	1 7	1 2½
A_2	Boston ...	Mid. Counties	1 5½	1 1½
A_2	Bournemouth...	S. Counties	1 6	1 1½
B_2	Bovey Tracey	S.W. Counties	1 4	1 0
A	Bradford ...	Yorkshire	1 7	1 2½
A_1	Brentwood ...	E. Counties	1 6½	1 2
A	Bridgend ...	S. Wales & M.	1 7	1 2½
B	Bridgwater ...	S.W. Counties	1 5	1 0½
A_1	Bridlington ...	Yorkshire	1 6½	1 2
A	Brighouse ...	Yorkshire	1 7	1 2½
A	Brighton ...	S. Counties	1 6	1 1½
A	Bristol ...	S.W. Counties	1 7	1 2½
B	Brixham ...	S.W. Counties	1 5	1 0½
A	Bromsgrove ...	Mid. Counties	1 7	1 2½
B	Bromyard ...	Mid. Counties	1 5	1 0½
A	Burnley ...	N.W. Counties	1 7	1 2½
A	Burslem ...	Mid. Counties	1 7	1 2½
A	Burton-on-Trent	Mid. Counties	1 7	1 2½
A	Bury	N.W. Counties	1 7	1 2½
A_1	Buxton ...	N.W. Counties	1 6½	1 2
A_1	CAMBRIDGE	E. Counties	1 6½	1 2
B_1	Canterbury ...	S. Counties	1 4½	1 0½
A	Cardiff ...	S. Wales & M.	1 7	1 2½
A	Carlisle ...	N.W. Counties	1 7	1 2½
B	Carmarthen ...	S. Wales & M.	1 5	1 0½
B	Carnarvon ...	N.W. Counties	1 5	1 0½
A_1	Carnforth ...	N.W. Counties	1 7	1 2½
A	Castleford ...	Yorkshire	1 7	1 2½
A_2	Chatham ...	S. Counties	1 5½	1 1½
A_2	Chelmsford ...	E. Counties	1 5½	1 1½
A_2	Cheltenham ...	S.W. Counties	1 5½	1 1½
A	Chester ...	N.W. Counties	1 7	1 2½
A	Chesterfield ...	Mid. Counties	1 7	1 2½
B	Chichester ...	S. Counties	1 5	1 0½
A	Chorley ...	N.W. Counties	1 7	1 2½
B_1	Cirencester ...	S. Counties	1 4½	1 0½
A	Clitheroe ...	N.W. Counties	1 7	1 2½
A	Clydebank ...	Scotland	1 7	1 2½
A	Coalville ...	Mid. Counties	1 7	1 2½
A_2	Colchester ...	E. Counties	1 6	1 1½
A_1	Colne	N.W. Counties	1 6½	1 2
A_2	Colwyn Bay ...	N.W. Counties	1 6	1 1½
A_1	Consett ...	N.E. Coast	1 6½	1 2
A_2	Conway ...	N.W. Counties	1 6	1 1½
A	Coventry ...	Mid. Counties	1 7	1 2½
A_2	Crewe	N.W. Counties	1 6	1 1½
A_2	Cumberland ...	N.W. Counties	1 5½	1 1½
A	DARLINGTON	N.E. Coast	1 7	1 2½
A	Darwen ...	N.W. Counties	1 7	1 2½
B_1	Deal	S. Counties	1 4½	1 0½
A_2	Denbigh ...	N.W. Counties	1 5½	1 1½
A	Derby	Mid. Counties	1 7	1 2½
A	Dewsbury ...	Yorkshire	1 7	1 2½
B	Didcot ...	S. Counties	1 5	1 0½
A	Doncaster ...	Yorkshire	1 7	1 2½
B_1	Dorchester ...	S.W. Counties	1 4½	1 0½
A_2	Driffield ...	Yorkshire	1 5½	1 1½
A_2	Droitwich ...	Mid. Counties	1 6	1 1½
A	Dudley ...	Mid. Counties	1 7	1 2½
A_2	Dumfries ...	Scotland	1 6	1 1½
A	Dundee ...	Scotland	1 7	1 2½
A	Durham ...	N.E. Coast	1 7	1 2½
A_2	EASTBOURNE	S. Counties	1 6	1 1½
A_1	Ebbw Vale ...	S. Wales & M.	1 6½	1 2
A	Edinburgh ...	Scotland	1 7	1 2½
A_2	Exeter ...	S.W. Counties	*1 6	1 1½
B	Exmouth ...	S.W. Counties	1 5	1 0½
A_2	FELIXSTOWE	E. Counties	1 5½	1 1½
A_2	Filey	Yorkshire	1 5½	1 1½
A	Fleetwood ...	N.W. Counties	1 7	1 2½
B_1	Folkestone ...	S. Counties	1 4½	1 0½
A	Frodsham ...	N.W. Counties	1 7	1 2
B_2	Frome ...	S.W. Counties	1 4	1 0
A	GATESHEAD	N.E. Coast	1 7	1 2½
B	Gillingham ...	S. Counties	1 5	1 0½
A_1	Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 6½	1 2
A	Glasgow ...	Scotland	1 7	1 2½
A_2	Gloucester ...	S.W. Counties	1 6	1 1½
A_2	Goole	Yorkshire	1 6	1 1½
A_2	Gosport ...	S. Counties	1 6	1 1½
A_2	Grantham ..	Mid. Counties	1 5½	1 1
A_1	Gravesend ...	S. Counties	1 6½	1 2
A	Greenock ...	Scotland	*1 7	1 2
A	Grimsby ...	Mid. Counties	1 7	1 2
B	Guildford ...	S. Counties	1 5	1 0
A	HALIFAX ...	Yorkshire	1 7	1 2½
A	Hanley ...	Mid. Counties	1 7	1 2½
A	Harrogate ...	Yorkshire	1 7	1 2½
A	Hartlepools ...	N.E. Coast	1 7	1 2½
B	Harwich ...	E. Counties	1 5	1 0½
B	Hastings ...	S. Counties	1 5	1 0½
A	Hatfield ...	S. Counties	1 6	1 1½
B	Hereford ...	S.W. Counties	1 5	1 0½
A_2	Hertford ...	E. Counties	1 6	1 1½
A	Heysham ...	N.W. Counties	1 7	1 2½
A	Howden ...	N.E. Coast	1 7	1 2½
A	Huddersfield ...	Yorkshire	1 7	1 2½
A	Hull	Yorkshire	1 7	1 2½
A	ILKLEY ...	Yorkshire	1 7	1 2½
A	Immingham ...	Mid. Counties	1 7	1 2½
A_2	Ipswich ...	E. Counties	1 6	1 1½
B_2	Isle of Wight ...	S. Counties	1 4	1 0
A	JARROW ...	N.E. Coast	1 7	1 2½
A	KEIGHLEY ...	Yorkshire	1 7	1 2½
A_2	Kendal ...	N.W. Counties	1 5½	1 1½
A_2	Keswick ...	N.W. Counties	1 5½	1 1½
A_1	Kettering ...	Mid. Counties	1 6½	1 2
A_2	Kidderminster	Mid. Counties	1 6	1 1½
B_1	King's Lynn ...	E. Counties	1 4½	1 0½
A	LANCASTER ...	N.W. Counties	1 7	1 2½
A_1	Leamington ...	Mid. Counties	1 6½	1 2
A	Leeds	Yorkshire	1 7	1 2½
A	Leek	Mid. Counties	1 7	1 2½
A	Leicester ...	Mid. Counties	1 7	1 2½
A	Leigh	N.W. Counties	1 7	1 2½
B	Lewes	S. Counties	1 5	1 0½
A_2	Lichfield ...	Mid. Counties	1 6	1 1½
A	Lincoln ...	Mid. Counties	1 7	1 2½
	Liverpool ...	N.W. Counties	*1 8½	1 3½
A_2	Llandudno ...	N.W. Counties	1 6	1 1½
A	Llanelly ...	S. Wales & M.	1 7	1 2½
	London (12-miles radius)		1 8½	1 3½
	Do. (12-15 miles radius)		1 8	1 3
A	Long Eaton ...	Mid. Counties	1 7	1 2½
A	Loughborough ...	Mid. Counties	1 7	1 2½
A_1	Luton	E. Counties	1 6½	1 2
A	Lytham ...	N.W. Counties	1 7	1 2½
A_1	MACCLESFIELD	N.W. Counties	1 6½	1 2
A_2	Maidstone ...	S. Counties	1 5½	1 1½
A_2	Malvern ...	Mid. Counties	1 5½	1 1½
A	Manchester ...	N.W. Counties	1 7	1 2½
A	Mansfield ...	Mid. Counties	1 7	1 2½
B_1	Margate ...	S. Counties	1 4½	1 0½
A_2	Matlock ...	Mid. Counties	1 5½	1 1½
A_1	Merthyr ...	S. Wales & M.	1 6½	1 2
A	Middlesbrough	N.E. Coast	1 7	1 2½
A_2	Middlewich ...	N.W. Counties	1 6	1 1½
B_2	Minehead ...	S.W. Counties	1 4	1 0
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 4	1 0
A	Morecambe ...	N.W. Counties	1 7	1 2½
A_2	NANTWICH ...	N.W. Counties	1 6	1 1½
A	Neath	S. Wales & M.	1 7	1 2½
A	Nelson ...	N.W. Counties	1 7	1 2½
A	Newcastle ...	N.E. Coast	1 7	1 2½
A	Newport ...	S. Wales & M.	1 7	1 2½
A	Normanton ...	Yorkshire	1 7	1 2½
A	Northampton	Mid. Counties	1 7	1 2½
A	North Shields...	N.E. Coast	1 7	1 2½
A	North Staffs ...	Mid. Counties	1 7	1 2½
A_1	Norwich ...	E. Counties	1 6½	1 2
A	Nottingham ...	Mid. Counties	1 7	1 2½
A	Nuneaton ...	Mid. Counties	1 7	1 2½
A_2	OAKHAM ...	Mid. Counties	1 5½	1 1½
A	Oldham ...	N.W. Counties	1 7	1 2½
A_2	Oswestry ...	N.W. Counties	1 5½	1 1½
A_1	Oxford ...	S. Counties	1 6½	1 2
A	PAISLEY ...	Scotland	*1 7	1 2
B_2	Pembroke ...	S. Wales & M.	1 3½	0 11½
A	Perth	Scotland	*1 7	1 2½
A_1	Peterborough....	E. Counties	1 6½	1 2
A	Plymouth ...	S.W. Counties	*1 7	1 2½
A	Pontefract ...	Yorkshire	1 7	1 2½
A_1	Pontypridd ...	S. Wales & M.	1 6½	1 2
A_2	Portsmouth ...	S. Counties	1 6	1 1½
A	Preston ...	N.W. Counties	1 7	1 2½
A	QUEENSFERRY	N.W. Counties	1 7	2½
A_2	READING ...	S. Counties	1 6½	1 2
B	Reigate ...	S. Counties	1 5½	1 1½
A_2	Retford ...	Mid. Counties	1 5½	1 1½
A_1	Rhondda Valley	S. Wales & M.	1 6½	1 2
A_2	Ripon	Yorkshire	1 5½	1 1½
A	Rochdale ...	N.W. Counties	1 7	1 2½
B	Rochester ...	S. Counties	1 5	1 0½
A_1	Ruabon ...	N.W. Counties	1 6½	1 2
A	Rugby ...	Mid. Counties	1 7	1 2½
A_2	Rugeley ...	Mid. Counties	1 6	1 1½
A	Runcorn ...	N.W. Counties	1 7	1 2½
A_1	ST. ALBANS ...	E. Counties	1 6½	1 2
A	St. Helens ...	N.W. Counties	1 7	1 2½
B_2	Salisbury ...	S.W. Counties	1 3½	0 11½
A_1	Scarborough ...	Yorkshire	1 6½	1 2
A	Scunthorpe ...	Mid. Counties	1 7	1 2½
A	Sheffield ...	Yorkshire	1 7	1 2½
A	Shipley ...	Yorkshire	1 7	1 2½
A_2	Shrewsbury ...	Mid. Counties	1 6	1 1½
A_2	Skipton ...	Yorkshire	1 6	1 1½
A_2	Slough ...	S. Counties	1 6	1 1½
A_1	Solihull ...	Mid. Counties	1 6½	1 2
A_2	Southampton ...	S. Counties	1 6	1 1½
A_1	Southend-on-Sea	E. Counties	1 6½	1 2
A	Southport ...	N.W. Counties	1 7	1 2½
A	S. Shields ...	N.E. Coast	1 7	1 2½
A_1	Stafford ...	Mid. Counties	1 6½	1 2
A	Stirling ...	Scotland	1 7½	1 2½
A	Stockport ...	N.W. Counties	1 7	1 2½
A	Stockton-on-Tees	N.E. Coast	1 7	1 2½
A	Stoke-on-Trent	Mid. Counties	1 7	1 2½
B	Stroud ...	S.W. Counties	1 5	1 0½
A	Sunderland ...	N.E. Coast	1 7	1 2½
A	Swansea ...	S. Wales & M.	1 7	1 2½
A_2	Swindon ...	S.W. Counties	1 5½	1 1½
A_1	TAMWORTH ...	N.W. Counties	1 6½	1 2
B	Taunton ...	S.W. Counties	1 5	1 0½
A	Teesside Dist....	N.E. Counties	1 7	1 2½
A_2	Teignmouth ...	S.W. Coast	1 6	1 1½
A	Todmorden ...	Yorkshire	1 7	1 2½
A_1	Torquay ...	S.W. Counties	1 6½	1 2
B_2	Truro	S.W. Counties	1 4	1 0
A_2	Tunbridge Wells	S. Counties	1 5½	1 1½
A	Tunstall ...	Mid. Counties	1 7	1 2½
A	Tyne District....	N.E. Coast	1 7	1 2½
A	WAKEFIELD	Yorkshire	1 7	1 2½
A	Walsall ...	Mid. Counties	1 7	1 2½
A	Warrington ...	N.W. Counties	1 7	1 2½
A_1	Warwick ...	Mid. Counties	1 6½	1 2
A_1	Wellingborough	Mid. Counties	1 6½	1 2
A	West Bromwich	Mid. Counties	1 7	1 2½
A_2	Weston-s.-Mare	S.W. Counties	1 6	1 1½
A_2	Whitby ...	Yorkshire	1 6	1 1½
A	Widnes ...	N.W. Counties	1 7	1 2½
A	Wigan ...	N.W. Counties	1 7	1 2½
B	Winchester ...	S. Counties	1 5	1 0½
A_2	Windsor ...	S. Counties	1 6	1 1½
A	Wolverhampton	Mid. Counties	1 7	1 2½
A_2	Worcester ...	Mid. Counties	1 6	1 1½
A_2	Worksop ...	Yorkshire	1 5½	1 1½
A_1	Wrexham ...	N.W. Counties	1 6½	1 2
A_2	Wycombe ...	S. Counties	1 5½	1 1½
B	YARMOUTH ...	E. Counties	1 5	1 0½
B	Yeovil ...	S.W. Counties	1 5	1 0½
A	York	Yorkshire	1 7	1 2½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request. The rates of wages have been revised consequent upon the increase in wages which came into operation on February 1, together with all revisions following authorized annual regradings.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	£ s. d.
Bricklayer . . . . . per hour	1 8½
Carpenter . . . . . ,,	1 8½
Joiner . . . . . ,,	1 8½
Machinist . . . . . ,,	1 9½
Mason (Banker) . . . . . ,,	1 8½
,, (Fixer) . . . . . ,,	1 9½
Plumber . . . . . ,,	1 8½
Painter . . . . . ,,	1 7½
Paperhanger . . . . . ,,	1 7½
Glazier . . . . . ,,	1 8½
Slater . . . . . ,,	1 8½
Scaffolder . . . . . ,,	1 4½
Timberman . . . . . ,,	1 4½
Navvy . . . . . ,,	1 3½
General Labourer . . . . . ,,	1 3½
Lorryman . . . . . ,,	1 6½
Crane Driver . . . . . ,,	1 7½
Watchman . . . . . per week	2 10 0

MATERIALS

EXCAVATOR AND CONCRETOR

	£ s. d.
Grey Stone Lime . . . . . per ton	2 2 0
Blue Lias Lime . . . . . ,,	1 18 6
Hydrated Lime . . . . . ,,	2 5 0
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . . ,,	1 19 0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2 5 0
White Portland Cement, in 1-ton lots ,,	8 15 0
Thames Ballast . . . . . per Y.C.	6 6
¾" Crushed Ballast . . . . . ,,	7 0
Building Sand . . . . . ,,	7 6
Washed Sand . . . . . ,,	8 6
2" Broken Brick . . . . . ,,	8 0
¾" ,, ,, ... ,,	10 3
Pan Breeze . . . . . ,,	6 6
Coke Breeze . . . . . ,,	8 9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s. d.	6" s. d.
Straight Pipes . . . per F.R.	0 9	1 1
Bends . . . . . each	1 9	2 6
Taper Bends . . . . . ,,	3 6	5 3
Rest Bends . . . . . ,,	4 3	6 3
Single Junctions . . . . . ,,	3 6	5 3
Double . . . . . ,,	4 9	6 6
Straight channels . . . per F.R.	1 6	2 6
¾" Channel bends . . . each	2 9	4 0
Channel junctions . . . ,,	4 6	6 6
Channel tapers . . . . ,,	2 9	4 0
Yard gullies . . . . . ,,	6 9	8 9
Interceptors . . . . . ,,	16 0	19 6
IRON DRAINS:		
Iron drain pipe . . . per F.R.	2 3	3 8
Bends . . . . . each	5 10½	12 1
Inspection bends . . . ,,	10 7½	13 3½
Single junctions . . . ,,	10 4	21 3
Double junctions . . . ,,	16 0	28 8
Lead Wool . . . . . lb.	6	—
Gaskin . . . . . ,,	5	—

BRICKLAYER

	£ s. d.
Flettons . . . . . per M.	2 12 0
Grooved do. . . . . ,,	2 14 0
Phorpres bricks . . . . . ,,	2 15 0
,, Cellular bricks . . . ,,	2 15 0
Stocks, 1st quality . . . . ,,	4 11 0
,, 2nd ,, ... ,,	4 2 6
Blue Bricks, Pressed . . . ,,	8 14 0
,, Wirecuts . . . ,,	7 12 6
,, Brindles . . . ,,	7 0 0
,, Bullnose . . . ,,	9 0 0
Red Sand-faced Facings . . ,,	6 18 6
Red Rubbers for Arches . . ,,	12 0 0
Multicoloured Facings . . ,,	7 10 0
Luton Facings . . . . ,,	7 10 0
Phorpres White Facings . . ,,	3 17 3
,, Rustic Facings . . ,,	3 12 3
Midhurst White Facings . . ,,	3 0 0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:	
Stretchers . . . . . ,,	21 0 0
Headers . . . . . ,,	20 10 0
Bullnose . . . . . ,,	27 10 0
Double Stretchers . . . ,,	29 10 0
Double Headers . . . . ,,	26 10 0
Glazed Second Quality, *Less* . ,,	1 0 0
,, Buffs and Creams, *Add* ,,	2 0 0
,, Other Colours . . . ,,	5 10 0
2" Breeze Partition Blocks . per Y.S.	1 7
2½" ,, ,, ,, . . . ,,	1 10
3" ,, ,, ,, . . . ,,	2 1
4" ,, ,, ,, . . . ,,	2 6

MASON

The following d/d F.O.R. at Nine Elms:

	s. d.
Portland stone, Whitbed . . F.C.	4 4½
,, ,, Basebed . . ,,	4 7½
Bath stone . . . . . ,,	2 10
York stone . . . . . ,,	6 6
,, ,, Sawn templates ,,	7 6
,, ,, Paving, 2" . . F.S.	1 8
,, ,, ,, 3" . . ,,	2 6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station:

	£ s. d.
24" × 12" Duchesses . . per M.	28 17 6
22" × 12" Marchionesses . ,,	24 10 0
20" × 10" Countesses . . ,,	19 5 0
18" × 10" Viscountesses . ,,	15 10 0
18" × 9" Ladies . . . ,,	13 17 6
Westmorland green (random sizes) . per ton	8 10 0
Old Delabole slates d/d in full truck loads to Nine Elms Station:	
20" × 10" medium grey . per 1,000 (actual)	21 11 6
,, ,, green ,, ,,	24 7 4
Best machine roofing tiles . ,, ,,	4 5 0
Best hand-made do. . . ,, ,,	4 17 6
Hips and valleys . . . each	9
,, hand-made . . . ,,	9½
Nails, compo . . . . . ,,	1 4
,, copper . . . . . ,,	1 6

CARPENTER AND JOINER

	£ s. d.
Good carcassing timber . . F.C.	2 2
Birch . . . . . as 1" F.S.	9
Deal, Joiner's . . . . ,, ,,	5
,, 2nds . . . ,, ,,	4
Mahogany, Honduras . . ,, ,,	1 3
,, African . . . ,, ,,	1 1
,, Cuban . . . ,, ,,	2 6
Oak, plain American . . ,, ,,	1 0
,, Figured ,, . . ,, ,,	1 3
,, plain Japanese . . ,, ,,	1 2
,, Figured ,, . . ,, ,,	1 5
,, Austrian wainscot . ,, ,,	1 6
,, English . . . . ,, ,,	1 11
Pine, Yellow . . . . ,, ,,	1 0
,, Oregon . . . . ,, ,,	4
,, British Columbian . ,, ,,	4
Teak, Moulmein . . . ,, ,,	1 3
,, Burma . . . ,, ,,	1 2
Walnut, American . . ,, ,,	2 3
,, French . . . ,, ,,	2 3
Whitewood, American . ,, ,,	1 1
Deal floorings, ¾" . . Sq.	18 6
,, 1" . . ,,	1 1 6
,, 1¼" . . ,,	1 2 0
,, 1½" . . ,,	1 5 0
,, 1¾" . . ,,	1 10 0
Deal matchings, ¾" . . ,,	14 6
,, 1" . . ,,	15 6
,, 1¼" . . ,,	1 4 0
Rough boarding, ¾" . . ,,	16 0
,, 1" . . ,,	18 0
,, 1¼" . . ,,	1 6 0

Plywood, per ft. sup.:

Thickness	¼"			½"			¾"			1"		
Qualities	A	B	BB	A	B	BB	A	B	BB	A	B	BB
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch 60 × 48	4	2½	2	5	3	2½	7	5	4	8	6	5
Cheap Alder .	–	2	1½	–	3½	2	–	–	–	–	–	–
Oregon Pine .	–	2½	–	3	2½	–	4	3½	–	5	4½	–
Gaboon Mahogany	4	3½	–	5	4½	–	7	6½	–	8	7	–
Figured Oak .	6½	5	–	7½	5½	–	10	8	–	1/–	9	–

	d.
Scotch glue . . . . . lb.	8

SMITH AND FOUNDER

Tubes and Fittings:

(The following are the standard list prices from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1½"	2"
Tubes 2'–14' long per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"–23" long . each	10	1/1	1/11	2/8	4/9
,, 3"–11½" long . ,,	7	9	1/3	1/8	3/–
Long screws, 12"–23½" long ,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M–½" long ,,	8	10	1/5	1/11	3/6
Bends . . . . . ,,	8	11	1/7½	2/7½	5/2
Springs not socketed . ,,	5	7	1/1½	1/11½	3/11
Socket unions . . . ,,	2/–	3/–	5/6	6/9	10/–
Elbows, square . . . ,,	10	1/1	1/6	2/2	4/3
Tees . . . . . ,,	1/–	1/3	1/10	2/6	5/1
Crosses . . . . . ,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples ,,	3	4	6	8	1/3
Diminished sockets . ,,	4	6	9	1/–	2/–
Flanges . . . . ,,	9	1/–	1/4	1/9	2/9
Caps . . . . . ,,	3½	5	8	1/–	2/–
Backnuts . . . . ,,	2	3	5	6	1/1
Iron main cocks . . ,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs . ,,	—	4/–	7/6	10/–	21/–

Discounts	TUBES Per cent.		Per cent.
Gas . . .	68½	Galvanized gas .	61½
Water . . .	66½	,, water .	55
Steam . . .	63½	,, steam .	50
	FITTINGS		
Gas . . .	61½	Galvanized gas .	55½
Water . . .	58½	,, water .	50
Steam . . .	53½	,, steam .	46½

	s. d.
Rolled steel joists cut to length . . cwt.	14 6
Mild steel reinforcing rods, ½" . . . ,,	10 6
,, ,, ,, ¾" . . . ,,	10 3
,, ,, ,, 1" . . . ,,	10 0

SMITH AND FOUNDER—*continued*

	s. d.
Mild steel reinforcing rods, ¾" . . cwt.	9 6
,, ,, ,, ⅞" . . ,,	9 6
,, ,, ,, 1" . . ,,	9 6
,, ,, ,, 1¼" . . ,,	9 6
,, ,, ,, 1½" . . ,,	9 6

Cast-iron rain-water pipes of ordinary thickness metal	4" F.R.	4" s. d.	5" s. d.
Shoes	each	2 0	3 0
Anti-splash shoes . . . ,,		4 6	8 0
Boots . . . . . ,,		3 0	4 0
Bends . . . . . ,,		2 7	3 9
,, with access door . ,,		—	6 3
Heads . . . . . ,,		4 0	5 0
Swan-necks up to 9" offsets . ,,		3 9	6 0
Plinth bends, 4½" to 6" . ,,		3 9	5 3
Half-round rain-water gutters of ordinary thickness metal .	F.R.	5	6
Stop ends	each	6	6
Angles . . . . . ,,		1 7	1 11
Obtuse angles . . . ,,		2 0	2 6
Outlets . . . . . ,,		1 9	2 3

PLUMBER

	s. d.
Lead, milled sheets . . . cwt.	32 6
,, drawn pipes . . . ,,	32 0
,, soil pipes . . . ,,	35 0
,, scrap . . . . ,,	19 0
Solder, plumbers' . . . lb.	1 1½
,, fine do. . . . ,,	1 4
Copper, sheet . . . . ,,	1 0½
,, tubes . . . . ,,	1 2½

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast . . F.R.	1 0	1 2	2 6
Coated . . . ,,	1 1	1 3	2 8
Galvanized . . ,,	2 0	2 6	4 6
Holderbats . . each	3 10	4 0	4 9
Bends . . . ,,	3 9	5 3	10 3
Shoes . . . ,,	2 10	4 4	9 6
Heads . . . ,,	4 8	8 5	12 9

PLASTERER

	£ s. d.
Lime, chalk . . . . . per ton	2 0 0
Plaster, coarse . . . . ,,	2 15 0
,, fine . . . . ,,	4 7 6
Hydrated lime . . . . ,,	3 0 9
Sirapite . . . . . ,,	3 6 0
Keene's cement . . . . ,,	3 6 0
Gothite plaster . . . . ,,	3 6 0
Pioneer plaster . . . . ,,	3 6 0
Thistle plaster . . . . ,,	3 6 0
Sand, washed . . . . Y.C.	11 6
Hair . . . . . lb.	6
Laths, sawn . . . . bundle	2 4
,, rent . . . . ,,	3 9
Lath nails . . . . . lb.	3

GLAZIER

	s. d.	s. d.
Sheet glass, 24 oz., squares n/e 2 ft. s. F.S.		2½
,, ,, 26 oz. ,, ,, ,, ,,		3½
Flemish, Arctic, Figures (white)* . ,,		7½
Blazoned glasses . . . . ,,		2 6
Reeded: Cross Reeded . . . ,,		11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite ,,		6
Crown sheet glass (n/e 12" × 10") . ,,		2 0
Flashed opals (white and coloured) . ,,	1 0 and 2	3 0
¼" rough cast; rolled plate . . ,,		6
¼" wired cast; wired rolled . ,,		10½
¼" Georgian wired cast . . ,,		11½
¼" Polished plate, n/e 1 ft. . ,,	†10 to ‡1 1	
,, ,, 2 . . ,,	†1 2 ,, ‡1 4	
,, ,, 4 . . ,,	†2 3 ,, ‡2 6	
,, ,, 8 . . ,,	†2 9 ,, ‡3 2	
,, ,, 20 . . ,,	†3 1 ,, ‡3 9	
,, ,, 45 . . ,,	†3 3 ,, ‡4 0	
,, ,, 100 . . ,,	†4 0 ,, ‡4 10	
Vita glass, sheet, n/e 1 ft. . ,,		1 0
,, ,, ,, 2 ft. . ,,		1 3
,, ,, ,, over 2 ft. . ,,		1 9
,, ,, plate, n/e 1 ft. . ,,		1 6
,, ,, ,, 2 ft. . ,,		3 0
,, ,, ,, 5 ft. . ,,		4 0
,, ,, ,, 7 ft. . ,,		5 0
,, ,, ,, 15 ft. . ,,		6 0
,, ,, ,, over 15 ft. . ,,		7 6
"Calorex" sheet 21 oz., and 32 oz. ,,	2 6 and	3 6
,, rough cast ¼" and ½" . ,,	8½ ,,	1 0
Putty, finseed oil . . . lb.		3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

	£ s. d.
White lead in 1-cwt. casks . . cwt.	2 19 9
Linseed oil . . . . . gall.	3 2
Boiled oil . . . . . ,,	3 5
Turpentine . . . . . ,,	3 9
Patent knotting . . . . ,,	14 0
Distemper, washable . . . cwt.	2 6 0
,, ordinary . . . ,,	2 0 0
Whitening . . . . . ,,	4 0
Size, double . . . . . firkin	3 0
Copal varnish . . . . . gall.	13 0
Flat varnish . . . . . ,,	14 0
Outside varnish . . . . ,,	16 0
White enamel . . . . . ,,	1 15 0
Ready mixed paint . . . ,,	13 6
Brunswick black . . . . ,,	7 6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.	2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8	6
" to form basement n/e 5' 0" and cart away	"	9	0
" " 10' 0" deep and cart away	"	9	6
" " 15' 0" deep and cart away	"	10	0
If in stiff clay	add "		6
If in underpinning	" "	4	0
Planking and strutting to sides of excavation	F.S.	1	0
" " to pier holes	"		5
" " to trenches	"		5
" " extra, only if left in	"		3
Hardcore, filled in and rammed	Y.C.	10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
" " (4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, space face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	5	9	8	3
Extra, only for bends	Each	11	9	17	3

BRICKLAYER		£	s.	d.
Brickwork, Flettons in lime mortar	Per Rod	26	10	0
" " in cement	"	27	12	6
" Stocks in cement	"	34	0	0
" Blues in cement	"	50	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" rising on old walls	"	2	0	0
" underpinning	"	5	10	0
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facings and pointing	"		1	4
" " " glazed brick facings and pointing	"		3	6
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"		1	1

ASPHALTER		s.	d.
½" Horizontal dampcourse	Y.S.	4	9
½" Vertical dampcourse	"	7	9
½" paving or flat	"	6	3
1" paving or flat	"	7	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2½
Rounded angle	"		2½
Cesspools	Each	5	6

MASON		£	s.	d.
Portland stone, including all labour, hoisting, fixing and cleaning down, complete	F.C.	17	9	
Bath stone and do., all as last	"	13	6	
Artificial stone and do.	"	13	0	
York stone templates, fixed complete	"	10	6	
" thresholds	"	13	6	
" sills	"	1	0	6

SLATER AND TILER		£	s.	d.
Slating, Bangor or equal to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"		3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course		3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2	16	0
" " " " " " " (green)	"	4	15	0

CARPENTER AND JOINER		£	s.	d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2	2	6
Shuttering to sides and soffits of beams	F.S.			7
" to stanchions	"			7
" to staircases	"		1	6
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
⅞" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " " "	"	1	17	6
1¼" " " " " "	"	2	3	0
¾" × 2" fir battening for Countess slating	"		9	6
Do., for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1¼" " " " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼" do.	"	2	10	0
1½" do.	"	2	17	0
1" deal moulded skirting fixed on, and including grounds plugged to wall	F.S.		1	6
1¼" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1½" deal moulded sashes of average size	F.S.	1	9½
2" " " " " "	"	1	11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3	7
2" " " " " "	"	3	10
Extra only for moulded horns	Each		6
1½" deal four-panel square, both sides, door	F.S.	2	0
2" " " " "	"	2	8
1¼" " but moulded both sides	"	2	4
2" " " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " " " "	"	1	4
11" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1½" deal moulded wall strings	"	2	1
1¼" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	3
1" × 1" deal balusters and housing each end	Each	2	0
1½" × 1½" " " " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.		16	6
Riveted plate or compound girders, and hoisting and fixing in position	"	1	0	6
Do., stanchions with riveted caps and bases and do.	"		19	0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"		17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER		£	s.	d.
Milled lead and labour in flats	cwt.	2	3	0
Do. in flashings	"	2	6	6
Do. in covering to turrets	"	2	12	0
Do. in soakers	"	1	17	9
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close " "	"			4

		½" s.	d.	¾" s.	d.	1" s.	d.	1¼" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	1	2	1	4	1	8½	2	7	3	6	—	
Do. soil pipe and fixing with cast lead tacks		—		—		—		—		—		7	3
Extra, only to bends	Each	—		—		—		—		2	3	7	6
Do. to stop ends	"	6½		8		"		11		1	0	—	
Boiler screws and unions		3	3	3	9	5	0	8	0	—		—	
Lead traps		—		—		—		8	0	11	6	—	
Screw down bib valves	"	6	9	9	6	11	0	—		—		—	
Do. stop cocks	"	7	9	9	6	12	6	—		—		—	

		£	s.	d.
4" cast-iron ½-rd. gutter and fixing	F.R.		1	0
Extra, only stop ends	Each		1	0
Do. angles	"		1	6
Do. outlets	"		2	9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.		1	2
Extra, only for shoes	Each		1	3
Do. for plain heads	"		5	6

PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S.	2	0
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement angle and arris	F.R.		6
Arris	"		1½
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
11" " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1	2	6
Extra, only for small quadrant angle	F.R.			8

GLAZIER		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		6½
26 oz. do. and do.	"		7½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beds	"		2
Washleather	F.R.		4

PAINTER		s.	d.
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper	from "	2	9