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M.A., B.Arch., A.R.I.B.A., A.M.T.P.I.
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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.

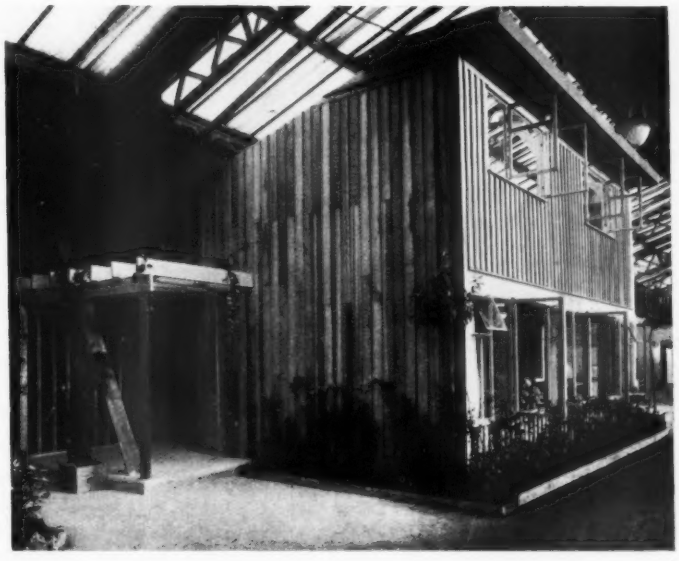
THURSDAY, SEPTEMBER 22, 1938 NUMBER 2279 : VOLUME 88

PRINCIPAL CONTENTS

TWO EXHIBITS AT THE BUILDING EXHIBITION

THE HOUSING CENTRE AND THE MARS GROUP

1



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THE theme of the Housing Centre's "New Homes for Old" Exhibition is rural housing. One of the principal features is a rural slum cottage occupied up to a few weeks of the opening of the Exhibition which has been demolished and re-erected at Olympia (fig. 1) in order to show the conditions in which many agricultural labourers and their families are living and as an example of one of the chief causes of the drift from the land to the towns. In contrast is shown a full-size timber cottage (figs. 2, 3 and 4) designed by Miss J. Blanco White in consultation with the Timber Development Association and with accommodation approved by the Ministry of Health for rural housing. Figures 3 and 4 show two views of the living-dining room. The exhibit (Gal. 417-424) has been arranged by Miss J. G. Ledeboer.

The exhibit (Gal. 411-416) of the MARS Group adjoins that of the Housing Centre and is a revised version of the Group's Exhibition of Modern Architecture held at the New Burlington Galleries at the beginning of the year. On entering the first section it will be noticed that there is the now familiar display of the words of Sir Henry Wotton: "Well building has three conditions: Commoditie, Firmenes and Delight." The exhibit has been designed as a modern interpretation of these three conditions.

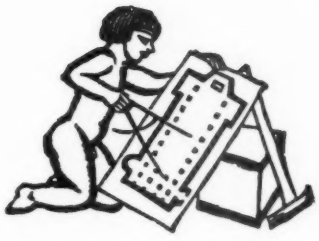
5

LAND SETTLEMENT

In this issue are illustrated four cottage homestead schemes, recently completed by the Land Settlement Association on behalf of the Commissioners for the Special Areas.

Into the houses on these schemes older unemployed men with adolescent families are moved from Special Areas by the help of the Association. Each scheme, although itself in rural surroundings, is within easy reach of a prosperous industrial area where the children will have a good chance of future work. And in the meantime, the father of the family, even if he does not obtain employment, can occupy himself fully and most usefully in cultivating the half an acre of garden attached to each house.

Above are three of the houses on the Caversham scheme. The architect for all the schemes was Mr. A. G. Sheppard Fidler. The photographs of the schemes are by E. R. Jarrett.



THE LIMITS OF FORTY MONTHS

IN the last two articles on this page the JOURNAL has tried to establish the main causes of the criticism of existing methods of architectural education.

It believes that present disagreement has two principal origins. The first is the larger matter of changed views on political and social questions which are now unsettling all education. The second is the inherent conservative tendency in all educational systems, which is a constant danger in technical education for a profession which is always changing and developing.

If personal questions are laid aside, the criticisms directed against architectural education during the past few years can nearly always be placed under one or other of these heads.

But changes made as a result of these criticisms must consider the length of the training period. It is here that the crux of one-half of the matter seems to lie. Five years of theoretical training is the most the profession demands—or can demand—of any student. This means about forty months' working time.

In deciding their policy (on which the allocation of time between studies depends) the directors of any school today must realize that architectural practice is changing in its methods and rapidly widening in scope. But they must also bear in mind that the working time of their students remains fixed : at forty months.

For those who look for perfection this is a hard nut to crack. The JOURNAL, has repeatedly maintained the importance to the profession of such constituents of territorial planning as Trunk Roads and Trading Estates. It still maintains that it is vital that architects should set up an efficient organization for studying these problems. But if it is expected—as it is—that at the end of five years' training the average architectural student should be capable of practising architecture, the JOURNAL cannot see that more than the general implications of these wider aspects of architecture can find a place in school courses. If they do, things of more immediate importance to the individual student, and the profession, must be sacrificed.

It seems indisputable that the fundamentals of five years' training for architects today must remain a thorough knowledge of four things : the design of individual buildings and building groups ; the architecture of craftsmanship and its construction ; contemporary construction—consisting more and more of standardized units ; and subsidiary aspects of present practice. To these there ought to be added general lectures and some slight study of the wider applications of planning and its importance to the profession. But it is the first four which must remain first for architects in the undergraduate stage.

If the fixed period of training does make it obviously advisable for the schools' range of study to be limited in this way, then present criticisms must be chiefly directed against teaching method rather than range. And there seems no doubt that it is so.

Any study of the disagreements of the past few years between those who run the educational system and their critics, seems to show how easy it is to be partly right for the wrong reasons. The architect who maintains that the student ought to stick to smaller problems of construction and design is largely right ; but when he says the student ought to do so because all this town-planning, political and sociological stuff is nonsense, he is utterly wrong. And he is even more wrong if he maintains that because Design in 1938 is as much Design as it was in 1900 it should be studied in the 1900 way and even viewed from the 1900 standpoint.

A House for a Millionaire Bibliophile on Lake Como (accompanied by twenty lines of programme) is a good imaginative exercise as a twelve-hour study once a term, or a three-day scheme once a year. But as a serious contribution to training in design for modern architects it is nothing at all.

This is the crux of the second half of the problem. Today minimum spacing for special purposes and the use of standardized constructional and equipment units are of preponderant importance in architectural design. And to allow time and facilities, in each design problem, for students to gain knowledge of these purposes and units, is a first necessity—a necessity which must in turn alter the organization of the study of design in all schools.

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NOTES & TOPICS

BUILDING EXHIBITION

THE exhibition has naturally suffered from the international situation. It is difficult to find the right mood for looking for new ideas, or looking up old friends, while the evening papers are producing sensational placards half a dozen times a day.

*

But for all that attendance and business has not been nearly as bad as might have been expected. Possibly by the beginning of the week the public had, through optimism or fatalism, returned to something like normal in its outlook. And a very good exhibition may yet be crowded out.

SIDESHOWS . . .

How many visitors, I wonder, ever get as far as the Gallery? Yet it's worth looking at. The B.R.S. Exhibit, for instance, is there, and there is some astonishing craftsmanship on the stands of the trades training schools. Lead, copper and joinery work of the most beautiful accuracy: wasted effort in the sense that it is only a sample, but it is encouraging to think the real old crafts are keeping up the standard in spite of the fact that about half the men on the job nowadays are either labourers or so-called fitters with no ideas beyond a hammer and a Stillson wrench.

AND THE COLLECTOR'S HABIT

You have by now, no doubt, got all the pavement lights you need for ash trays and vases, but it seems that there must be still plenty of people who haven't. For on one glass manufacturer's stand I was greeted with the remark that "so many people who come here really only want an ash tray." It so happens that I was quite genuinely seeking after knowledge, but if I *had* been wanting an ash tray I should hardly have gone further in the matter. Neat, I thought.

BATH

On October 19 the renovated Assembly Rooms at Bath will be opened by the Duchess of Kent.

*

The Bath Preservation Trust has invited the Georgian Group to this ceremony, to a conversazione on the following day and a lunch the day after: and are thus moving towards a solidarity which is much needed.

*

If there is a Bristol and an Edinburgh Preservation Trust the sooner they take the same steps the better. Only a loud and widespread shout—very early in the proceedings—can hope to save what Georgian architecture remains.

JUST A PART OF THE A.R. SERVICE

I have always been one of those people who enjoy the bland Austin Reed advertising, without necessarily being a man about Regent Street. I remember one effort that enabled me to contemplate with equanimity a bad spot of international affairs for at least a week.

*

It ran: " . . . the vests are so-much a pair. We will tell you the price of the pants some other time."

*

Last Tuesday they endeavoured to pacify me—and anyone else interested—again, by opening an exhibition of Lake District photographs. The idea is sponsored by the Friends of the Lake District, and is part of a campaign by that organization to include what is left of the Lakes in a national park.

*

If you go and see the photographs you will agree that it would be an excellent idea.

*

Perhaps the Government might be persuaded to apply pressure and create an autonomous area. . . .

A.R.P. AGAIN

I have just been reading J. B. S. Haldane's book on A.R.P.* It is meant to be a popular book for the general public, and such technical details as it gives are generally to be found in appendices. But it appeals to me as an exceptionally fair and reasoned account of the dangers likely from various forms of aerial attack, and there are few people in this country who know anywhere near as much about gases as Professor Haldane.

*

Although Professor Haldane no longer lectures at Cambridge he is frequently identified with the Cambridge Scientists' Anti-War Group, who you may remember published a somewhat controversial book a year or so ago. Now Professor Haldane is very definitely Left Wing, but there is no attempt to make political capital in his book; if anything, he swings a little to the Right, and the book gains tremendously in impressiveness from this. Perhaps only scientists can control their private views and remain really objective. Buy this book and read it: read it, in fact, at least twice, and then look back over your A.A.S.T.A. Report.

FLAT TO LET

No doubt many of my readers have, at one time or another, like myself, been in search of a flat. They will recall the depressing little lists from the estate agents, the melancholy round of visits, the surprise, exasperation, and final sense of hopelessness that descends after drawing a dozen blanks. I wonder that something has not been done to improve things.

*

Or perhaps I should say, I wonder that success has not attended the efforts to improve things.

---

* A.R.P. By J. B. S. Haldane. Gollancz. Price 7s. 6d.

A view of the Building Exhibition at Olympia, taken from the Gallery

In Paris, I believe, there is a regulation, not too strictly observed, that a full list of accommodation, together with rental, shall be exhibited on the notice boards outside the desirable residences. While this would be an improvement on our own secretive methods, the obvious solution, it seems to me, is that PLANS should be exhibited. And exhibited both on the notice boards and on the estate agents' little lists.

*

Why cannot that be done?

*

And while we are thinking of brilliant ideas, could not the A.B.S. come forward with some offers of draughtsmen to make the necessary drawings?

GLASGOW PROBES EXHIBITION PURCHASE POSSIBILITY

Nearly every article about the Glasgow Exhibition has talked knowingly about the use of light sheet materials, and explained that the buildings have all got to come down at the end of the year. But now Glasgow Corporation is thinking of buying the whole thing, keeping the amusement park, of course (£100,000 profit a year), and, oddly enough, the South African Pavilion, "architecturally one of the best within the grounds." Tait's Tower has two factions, one which wants it as Glasgow's landmark, the other fearing it will become a white elephant.

*

And, of course, there is to be a giant stadium and sports arena.

"FIT FOR HEROES"

Under this heading a newspaper last week drew attention to the efforts being made by women to make houses as near ideal as possible. Among the important contributions described was that of Miss Christine Veasey, who has designed, for exhibition at Olympia, a piece of furniture "one foot wide, which acts as bedhead, capacious needlework box, table, bookshelf, and dining seat for two."

OR FOR HEROINES?

As the paper went on to remark, "it takes a woman to think of a thing like that"—a pretty courageous one, too, if she doesn't mind sleeping in a bed one foot wide, and sharing a seat of the same width with her guest at dinner.

*

Miss Veasey has also designed an extending desk (not, I understand, called the Veasey-come, Veasey-go), "which enlarges as the papers accumulate."

*

I suppose the only reason for not combining these two pieces of furniture is that it is notoriously difficult to find a capacious needlework box in a stack of accumulating papers.

THE MODERN GANG?

During the past five years nearly a hundred Adam fireplaces have been stolen. The latest theft has taken place from a house in Queen Anne Street, where renovations were taking place. Fireplaces have disappeared from houses in Portland Place, St. James's Street, Curzon Street, Bedford Square, and Upper Brook Street, and are rarely recovered.

*

Dealers believe that they are shipped to America, as they are harder to dispose of in this country. The police believe that the work is organized by a gang—known to them as the "Antique Gang."

*

A rumour in architectural circles that they are being bought up to be installed in some of our *avant-garde* flat blocks has not, however, gained much credence.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

DEVELOPMENT OF KINCORTH

Work is to start as soon as possible on the development of Kincorth, Aberdeen's satellite town on the south of the river Dee.

At a recent meeting of the Kincorth Special Committee of Aberdeen Town Council it was decided that the building of the two main roads in the scheme should be put into operation. The architects are Messrs. Holliday, Gardner-Medwin and Winston, whose design was placed first in an open competition held last September.

EXHIBITION OF TIMBER HOUSING DESIGNS

Professor Patrick Abercrombie, F.R.I.B.A., chairman of the Council for the Preservation of Rural England, opened, on Tuesday last, the exhibition of designs entered for the competition organized by the Timber Development Association for cottages for agricultural workers at the Building Centre, New Bond Street, W.1. The exhibition will remain open until October 15.

B.I.N.C.

Those local authorities and other bodies responsible for the control of buildings in the matter of the prevention of and means of escape from fire, will find that the report of the Fire Prevention Panel of the Building Industries National Council, under the chairmanship of Mr. Digby Solomon, B.SC., F.R.I.B.A., on "Means of Escape from Fire," provides most useful information with respect to such important matters as maximum occupancy, fire combat, provision of dry rising main, private appliances, overhead tanks, means of exit, etc. It is obtainable from the Council, price 1s. 3d.

HOUSING CENTRE

The Housing Centre is organizing a Ballet Première at Sadlers Wells on February 2, 1939, and in order to raise funds to pay for the expenses, it is arranging a small dance at the Suffolk Galleries on Friday, October 14, from 8.30 p.m. to midnight. Tickets may be obtained from Miss A. M. S. Wilson, 1 Grosvenor Place, S.W.1. (Price 5s. each, including light refreshments.)

APPOINTMENT

Mr. P. J. Marshall, DIP. ARCH. (LIVERPOOL), A.R.I.B.A., has been appointed architectural assistant on the permanent staff of the Southgate Borough Council.

HEALTH CONFERENCE

In connection with the Scottish Health Campaign, the Department of Health for Scotland is to hold a second Health Conference at the Empire Exhibition, Glasgow, on September 30. The Conference is being arranged in conjunction with the Ministry of Health, and immediately follows the annual conference of the Central Council for Health Education, which takes place at the Exhibition on the two preceding days.

THE ARCHITECTS' DIARY

Thursday, September 22

INSTITUTE OF HOUSING. *At Norwich. Sixth Annual General Meeting and Conference. Until September 24.*

TIMBER DEVELOPMENT ASSOCIATION. *At the Building Centre, New Bond Street, W.1. Exhibition of designs in the Association's recent competition. Until October 15.*

Friday, September 23

BUILDING EXHIBITION. *Olympia. Ball in aid of the Architects' Benevolent Society.* 7.30 *p.m.*

Saturday, September 24

LONDON SOCIETY. *Visit to Dickens' House, 48 Doughty Street, W.C.1.* 3 *p.m.*

Wednesday, September 28

ECCLESIOLOGICAL SOCIETY. "*French Romanesque Churches,*" By *A. Gardner. At 6 Queen's Square, W.C.1.* 8 *p.m.*

Thursday, September 29

NATIONAL SMOKE ABATEMENT SOCIETY. *Annual Conference. At Cardiff. Until October 1.*

DESIGN AND INDUSTRIES ASSOCIATION. *Second Week-end Conference. At Spa Plaza Hotel, Buxton. Until October 2.*

Friday, September 30

ARCHITECTS' REGISTRATION COUNCIL. *At 68 Portland Place, W.1. 26th Ordinary Meeting.*

TOWN PLANNING INSTITUTE. *Twentieth Annual Country Meeting. At the Queen's Hotel, Leeds. Until October 3.*

Saturday, October 8

LONDON TRADES COUNCIL. "*A.R.P. in Relation to the Civil Population of London.*" *Addresses by J. B. S. Haldane and T. E. Scott. Memorial Hall, Farringdon Road, E.C.* 2.30 *p.m.*

HOUSING CONFERENCE

A National Conference is to be held at Harrogate during the week-end November 25-28, under the joint auspices of the National Housing and Town Planning Council and the Scottish National Housing and Town Planning Council. Full details of the conference are obtainable from Mr. John G. Martin, 41 Russell Square, W.C.1.

INTERNATIONAL CONGRESS

The fifteenth International Congress of Architects will take place in Washington, U.S.A., from October 24 to 30, 1939.

Full information will be published in due course by the Comité Permanent International des Architectes.

ON THE AIR

On October 4, at 9.25 p.m., Mr. H. S. Goodhart-Rendel will give the twenty-first National Lecture on "Architecture in a Changing World."

BUILDING EXHIBITION

Sir Philip Sassoon, First Commissioner of Works, formally opened the Building Exhibition at Olympia on Friday last. Mr. H. S. Goodhart-Rendel, P.R.I.B.A., presided.

Sir Philip said that the Department for which he was responsible dealt with a great variety of types of building. Of late, large schemes of new and unusual character had come within its purview in connection with the expansion of some of the fighting forces, and he was glad to say that some of the more important buildings for which the Department was responsible had been entrusted to architects in private practice. His Department came into contact with many architects, surveyors, builders and the building trade generally, and he dared to say that there were occasions when some were inclined to think that the points of contact were too numerous, and unnecessarily unyielding. As to that, he could only say that it had been the constant aim of the Office of Works to discharge the duties entrusted to it in as helpful and sympathetic spirit as possible.

How difficult had been the post-war years was shown by the Exhibition itself, for it was evidence of the tremendous activity which prevailed throughout all sections of the building and allied trades.

The Exhibition provided the opportunity for producers of materials and designers of fittings and appliances to bring new or improved methods to the attention of those concerned. It stimulated those industries which provided the materials used by builders and encouraged efficiency by the stimulus of rivalry. For those reasons no architect could safely afford to miss the Exhibition

Alderman W. H. Birch and Mr. G. Hicks, M.P., also spoke.

PRIZES FOR LONDON STUDENTS

Awards by City Companies

Prizes presented by City Companies amounting to over £60, have been awarded to technical schools for their finished work at the Building Exhibition, Olympia.

The prize-winners, just announced, are :—

The Worshipful Company of Blacksmiths : £2 2s. awarded to the Trades Training School, Great Titchfield Street, W.1, for Iron Grill.

The Worshipful Company of Founders : £5 5s. and a copy of the Founders Medal to the L.C.C. Hammersmith School of Building and Arts and Crafts, W.12, for Model Fountain Head.

The Worshipful Company of Masons : £5 5s., and a Silver Medal to the L.C.C. School of Building, Brixton, S.W.4, for the best stonework.

The Worshipful Company of Pewterers : £20, and the Worshipful Company of Plumbers : £5 5s., combined and shared between the various schools exhibiting at the Exhibition.

The Worshipful Company of Turners : Silver Medal for the best Turnery awarded to the South-East Technical College, Dagenham.

The Worshipful Company of Tylers and Bricklayers : £5 5s., and Diplomas awarded to :—

£2 2s. to L.C.C. School of Building, Brixton, S.W.4, for Clock Face in Brickwork.

£1 1s. to Trades Training School, Great Titchfield Street, W.1, for Sundial in gauged work.

£1 1s. to L.C.C. Hammersmith School of Building, W.12, for Brick Window Treatment.

£1 1s. to Northern Polytechnic, Holloway, N.7, for Rough Axed Chimney Piece.

The Directors of the Building Exhibition : Four prizes of £5 each :—

For the most effective design and arrangement of exhibits to the L.C.C. School of Building, Brixton, S.W.4.

Highest General Standard of Craftsmanship to the L.C.C. School of Building, Brixton, S.W.4.

Best exhibit in decoration to the Northern Polytechnic, Holloway, N.7.

Best display of Trade Models for Constructional Teaching to the Trades Training School, Great Titchfield Street, W.1.

GROWTH OF THE R.I.B.A.

The newly published Kalendar of the R.I.B.A. provides evidence of steady growth during the last 12 months.

The professional members have increased in number from 8,013 to 8,283, and the total number of architects and students of architecture in the ranks of the R.I.B.A. and its Allied and Associated Societies throughout the Empire has increased from 20,353 to 20,743.

HACKNEY TECHNICAL INSTITUTE

Enrolment for the forthcoming session at the Hackney Technical Institute commenced on Monday last. Mr. C. W. Box, A.R.I.B.A., M.R.SAN.I., is head of the Architectural and Building Trades Department, and prospectuses and full particulars may be obtained on application to the principal, Mr. W. Rankine, M.B.E.

A NEW COMPETITION

The conditions of the competition (limited to architects whose offices are situated in Warwickshire) for new council offices, Bedworth, near Nuneaton, have just been issued. The assessor is Mr. S. N. Cooke, F.R.I.B.A., and the following premiums are offered: £50, £25 and £15. The sending-in day is January 31 next; and the last day for questions is October 31. Conditions are obtainable from Mr. Maurice Armson, F.R.C.A., Clerk of the Council, Council Offices, Bedworth. (Deposit £1 1s.)

CORRECTIONS

We regret that in the list of contractors for the New Infants' School, Shoreham, published in our issue for September 8, we inadvertently omitted the name of the firm responsible for the constructional work. We are informed by Messrs. Light Steel Sectional Constructions, Ltd., of Worthing, that the method of construction was built under their patents.

On page 392 of our issue for September 8, the internal finish of Perivale Park Free Church, designed by Mr. John P. Blake, was described as being plastered. Internally, the walls were, in fact, partly finished in sand-lime bricks supplied by Messrs. Sevenoaks Brick Works, Ltd.

Professor Reilly Speaking

I HAVE often wondered if by chance I accumulated a substantial sum of money or had somehow acquired one, whether I should have the energy and courage to build myself a house or whether I should take the safer course of buying an old one, restoring it and furnishing it in the manner of its time. Probably I am now too old and too tired to do either. It I were forty again which would I do? Many architects must have been faced with this problem. To pose it more thoroughly let us assume there is plenty of money to do either and to do it well.

Two of my architect friends have lately, to judge from all appearances, been in this happy position. They have houses in Sussex, where I now live, and one has chosen one method and one the other, and both have done the thing supremely well.

Serge Chermayeff has built himself a modern house. No one in his senses would today build himself anything else. Yet that needs courage and especially on the scale he has done it and in the lovely landscape, where he has planted it, looking south over gently sloping land to the South Downs. Away to the right is a wood into which he has scooped great glades filled in spring with daffodils and now with the long lines of mown turf. An occasional silver birch has been left posing its pale elegant stem against the darker background. There, in a perfect setting of the centuries-old man-made English landscape stretching out beyond his own hundred acres or so, Chermayeff has placed his "machine for living."

It is, as one would imagine from such an artist, an extraordinarily elegant machine, a regular Rolls Royce of a house as far as it goes, and that is further than most new houses today. For his wife, his two boys and himself and for his week-end visitors, all assumed to be sun-worshippers and nature-lovers like himself, and for his hundreds of Saturday and Sunday ones who motor over to talk and play and to gather tips from his building and its furnishing, it seems to me to be perfect. Will it seem so to him in thirty years when he reaches my age? Such a house with its high finish everywhere, its veneered surfaces, its great glass sliding windows, must never be allowed to show its age. It must always look fresh and new, yet one cannot change it every second year as one can one's car. Will Chermayeff want the same machine at sixty that he does at thirty?

I remember how sad I felt it when I first saw my old master's, John Belcher's, house at Denmark Hill forty years ago. He was then about the age I am now and had built his house I suppose twenty years earlier. It seemed, I remember, very suburban and *demodé* even then. Yet I have no doubt in the eighties, when it was put up, it was the newest thing, as he was the clever young Chermayeff of his time. Of course, buildings of the eighties had no particular style and were grounded in fancies rather than in facts, a very different matter to Chermayeff's lovely, crystal, white and golden cedar thing.

I passed the other night the famous house that the great Norman Shaw built for himself in Ellerdale Road, Hampstead, and from the outside in the evening light it looked too bad even for a boarding-house. No decent person could stomach its sham romanticism for a week.

So it needs courage as well as skill and enthusiasm for an architect to invest his own money and be his own client and to have no one to damn but himself.

This is true though. It is safer for him to do it today in the frank honest modern way Chermayeff has done it than it would have been any time since the Regency. With the absolute integrity of such work, with its exact and beautiful modern machine craftsmanship, with the building fitting its owner's mode of life like a glove and with no pretence to any other mode, I feel he is safe, as safe as any human being can be in this quickly-moving world. It was all that sham baronial nonsense, pretending that you were better than you were, which was the undoing of Norman Shaw and his contemporaries, just as the traditional dressing-up and pretending that you are living in the Georgian era when you are not, which will be the undoing of our Academic friends today.

Now for the real Georgian stuff. Basil Ionides and his wife bought some time ago a fine brick mansion of 1726 with porticos of 1810 standing in a lovely park. It was about to be pulled down and the materials sold. With the utmost knowledge and taste they have restored it and filled it with exquisite pictures and furniture and china all of the same period as the house, and they have enlarged and vastly improved the gardens. They have done it all, too, in such a way that you feel they are thinking and living in the period, except I suppose when they are using their modern bathrooms. For instance, Ionides has put everywhere the most lovely curtains, designing their valances and the way they hang, not as if he were a Rex Whistler exaggerating the era, but as if he were really living in it and exploiting all its possibilities in the way of lovely materials and their beautiful formal folds. The result is more than a museum because, except for their own clothes, he and his wife live in the house as it was designed to be lived in. His footmen almost do in their clothes as well.

He has vastly improved the gardens. He, too, has made glades, but they end in antique statues or in copies of such, not in Henry Moores or Zadkines. He has made amusing little arbours where ladies in silk paniers should be hiding.

One must admit it is an achievement, that it has saved a fine piece of the real wealth of the country and made it even better. If Chermayeff has created new wealth, as I think he has, Ionides has saved and preserved something which was year by year getting scarcer and has given it a new stretch of life Both have done well. Both are to be congratulated. Which has done the better?

LETTERS

FROM READERS

SIR,—I have read with interest your notes on Polaroid by Mr. Philip Scholberg, where reference is made to "Triplex" safety glass. I only want to correct, if I may, one error in relation to safety glass. It is stated that safety glass was made compulsory in the lower decks of all public service vehicles and in the windscreens of all private cars. Unfortunately, the law as it at present stands only makes it compulsory to have safety glass in all vehicles, whether public service or otherwise, in all windows which face front. The side windows of public service vehicles need not be fitted with safety glass according to law any more than those of private cars.

G. CUNNINGHAM,
Triplex Safety Glass, Ltd.

THE BUILDING EXHIBITION: 2

[BY G. BRIAN HERBERT, R. A. MANTHEI, & PHILIP SCHOLBERG]

At this year's Building Exhibition there are nearly four hundred and fifty exhibitors. Some of them have not been seen at the Exhibition before, others produce new devices and improvements on old, and there is another large group which exhibits the same well-tried products year after year. These old-established firms may well be the backbone of the Building Industry, but for the purposes of this report it has been assumed that the visitor with only a short time at his disposal is more interested in the newer devices and methods of construction, and attention is therefore mainly directed to what has not been shown at this Exhibition before. Structural materials, renderings and partitions are dealt with by Mr. Manthei, Mr. Herbert covers joinery and all finishes, and Mr. Scholberg the other items of equipment. Pen and wash drawings are by Mr. Hugh Casson.

VISITING Olympia early on Friday morning, some hours before the official opening ceremony in the afternoon, there is a general atmosphere of scurry, with a good many firms putting the last touches on their exhibits and one or two others who do not look like being ready until after the week-end. Knee-deep in rubbish and blinded by clouds of dust it is still possible to see that it is worth getting an architect to design the stand. Exactly how many firms have done so it is difficult to tell; the official catalogue gives thirty-two, but a number of firms apparently thought the fact hardly worth mentioning and the actual number is probably about forty to forty-five. The vexed question of grouping exhibitors remains unsolved, though the gas and the electrical industries have voluntarily arranged themselves, one round the Electrical Development Association stand in the main hall, the gas firms in the small hall with the Gas Light and Coke Co. and Ascots in the forefront. And while we are on the subject of stands it is permissible to wonder why architects will produce such odd perspectives of them; two stands at least we could hardly recognize at all because the eye level for the perspective was somewhere below sub-floor level and the so-slickly drawn visitors turned out to be only about three feet six tall. Maybe architects feel they have got to justify their fees by suggesting to the manufacturer that he's getting more than he thought. None the less most of the architect-designed stands are successful when seen in the flesh, and the owners of them gain a good deal of prestige thereby, more, probably, than they would themselves admit, even including the recent convert who doesn't like architects at all but feels he's got to at the Building Exhibition.

In 1936 we complained that not enough salesmen knew what they were talking about, and that statement remains truer than it should be this year, added to a further habit of just fading away in the middle of a conversation when the managing director appears. It is possible, however, to forgive everything to the naïve youth who explained to us how lucky we were to have arrived when we did because that over there was the technical man, "and he's hardly ever here in the ordinary way." Not that salesmen are the only ones who can make remarks like that, for an architect on one of the timber merchant's stands, asking about the origins of teak, refused to have anything to do with Burma on the grounds that he always used home-grown products whenever he could. But stories of the brighter remarks made at this Exhibition could be repeated endlessly, and the exhibits themselves are after all more important than the way in which they are presented.

The photograph at the top of the page was taken at the inaugural lunch; left to right, Sir Banister Fletcher, Sir Philip Sassoon, Mr. H. S. Goodhart-Rendel, P.R.I.B.A., *Mr. E. G. Culpin, Ald. W. H. Birch, and Mr. G. Hicks,* M.P.

WATERPROOFERS

An interesting method of introducing a "damp course" into a porous wall is shown on the Dryco-Rensec stand (257 M). Two rows of 1-in. to 1½-in. diameter holes are bored into the wall at an angle of 45 degrees at about 9-in. centres (see Fig. 1), and these are filled

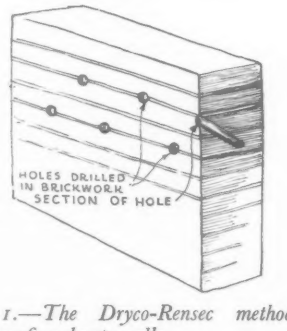


Fig. 1.—The Dryco-Rensec method of waterproofing damp walls.

with neat Rensec which saturates the brickwork. The saturation radius from each hole is such that a continuous band is formed along the whole of the wall, which is thus rendered waterproof. Rendering is then applied to stop lateral dampness.

There is something uncanny about that material "Synthaprufe" by Powell Duffryn (207 K). Pull a strip of this bitumen and rubber material to three times its normal size and it slowly regains its shape—a remarkable testimony to its elasticity, which is a useful quality for the waterproof covering of roofs. It is applied as a liquid in three coats and covered with sand, followed by a cement screed or plaster as the case may be. It can be used as a base for floor finishes and is resilient, and it is also useful as a waterproof basis for renderings on damp walls. "Durolife" (91 E) also show examples

of the latter use of a bituminous compound.

We still have a long way to go yet before a really successful bituminous compound (or any other material for that matter) can be used for expansion joints in buildings. The essential qualities required are : perfect adhesion to concrete and resilience without extrusion or intrusion in the joint. Celotex, Ltd. (9 B) seem to be the only people who have solved the problem. Their Flexcell is a spongy material and at the same time it sticks to concrete. It is new, and it therefore remains to be seen whether it will retain its sponginess in ten or twenty years' time. Our usual standby is, of course, a V-shaped copper strip. A model of such an expansion joint is shown on the I.C.I. stand (198 J), but why don't they make a bigger V and let the copper bend show on the surface. It is much more ornamental than bitumen (Fig. 2) and allows a greater amount of movement.

Incidentally, I.C.I. have an interesting exhibit of a Pioneer partition brought from the burnt-out H.M.V. premises in Oxford Street. It is in " a remarkable state of preservation."

Gabriel, Wade and English (214 K) show a Resweld Plywood which will stand any amount of water without peeling or buckling, and is especially useful for lining shutters to produce a perfectly flat concrete surface, even if the weather is wet for days on end and concreting is delayed.

Venestas (155 G) also show a resin-bonded plywood intended for much the same purposes. This is marketed under the trade name of Shuttaply.

More and more firms are becoming better known for manufacturing liquids which, when mixed with cement, decrease its setting time. See Sealocrete (382 Gal.) and Sal Ferricite (184 J).

But why do their prices vary so much ? If you are going to plug any holes with this fast setting material mind you work fast yourself, and not be like the foreman who once mixed the stuff in a bucket and then couldn't get it out.

It's still a pity that these same firms employ the propaganda they do for waterproofing concrete. Concrete *is* waterproof if reasonably well made. If it is badly made it means that it is porous and you cannot very well waterproof holes.

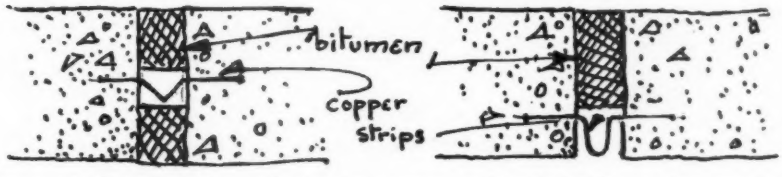


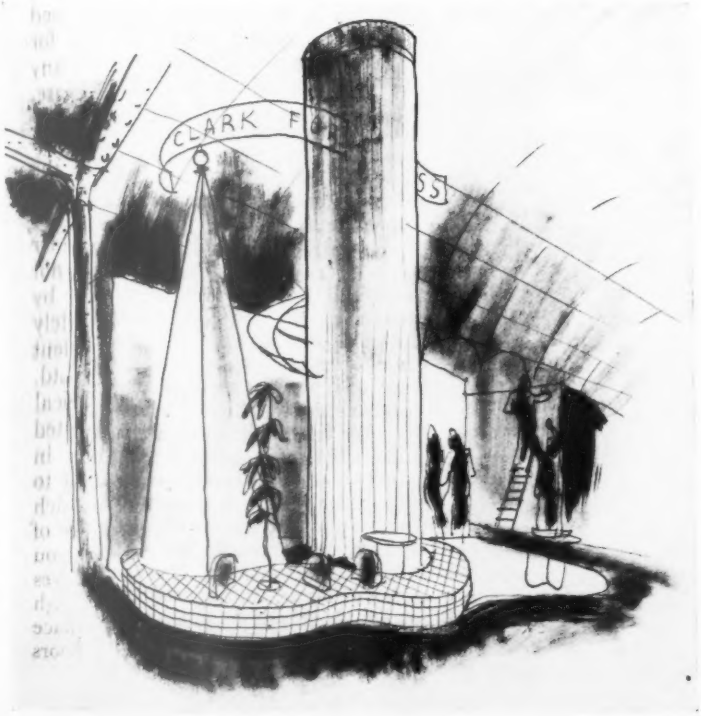
Fig. 2.—Left, the normal type of sheet copper expansion joint by I.C.I. ; right, a suggested modification.

CONCRETE

There is a new type of concrete mixer by Benford, Ltd. (306 R). It is called the Regulus and a continuous supply of concrete is produced by a spiral rotating horizontally. This spiral is fed at intervals along its length by cement, sand and aggregate in proportions determined by adjustable division plates. So long as the spiral is kept covered, the correct mixture is maintained. Water, of course, is sprayed on the resultant dry mixture before it leaves the machine. The machine is made in sizes up to outputs of 400 cu. yds. a day, and was originally developed for use in the building of the German Autobahnen.

Cement Marketing (152 G) comes forth again with a new finish. There ought to be a reference library now devoted entirely to the different surfaces and textures that can be produced with brushes and combs, stipplers and hack saw blades and so on. The new finish is " Tyrolean " and it is produced by a cunning machine which, by turning a handle, produces little balls of wet cement and sand and flings them on to the wall. But what beautiful colours—just the kind we want for one or two houses in Hampstead.

Now we come to the sad story of lime or no lime. Watford's B.R.S., after sending an expert delegation for an extensive tour of the Continent, now tell us to add something like 25 per cent. lime to our cement and sand. This will dilute the hard nature of the cement and your resultant finish will not craze. T.S.W., Ltd. (368 Gal.) agree, and they say that their Mortone, which contains a fair proportion of lime, and is usually given a scraped finish, never crazes. They have examples three years old. Cement Marketing, however, say " Don't use lime in your first and third coats," although in their



brochure they recommend a small proportion in the second coat.

We know that many of our English jobs craze badly (cement and sand), and we also know that a large proportion of Continental jobs do not craze (cement, lime and sand). The independent body — the Cement and Concrete Association—says in its latest brochure "cement and sand in all coats." Something wrong somewhere, surely. On the one hand, we have an important research body saying lime, and on the other we have the biggest cement representatives saying no lime, or at any rate, just a little in one of the coats. It's time that this matter was straightened out so that architects will know what is the right thing to do before they decide not to use rendering at all. By the way, the Cement and Concrete Association (429 Gal.) are pushing concrete houses. But somebody must try out all these patent constructional systems before architects will alter their old idea that brick is cheaper and probably better, at least outside the stone counties.

Cement Marketing are showing some very fine examples of bathroom tiles (made with cement, of course), and they really look very well, besides being glass hard on the surface. They work out at about 8s. a square yard.

If you have some well-made concrete that you want to break up, go to George Monro's stand (133 F) and see the new ingenious gravity breaker. Only one man is required, and every blow is efficient.

Getting away from the cement business, there's a neat cover for ducts and manholes marketed by The Dover Engineering Works (128 F) called the Elkington Gatic cover. Fig. 3 shows the arrangement. The cover proper can be filled with any finish and the edges are always preserved by the steel framing. This firm also shows a heavy metal sliding cover for A.R.P. shelters.

Fig. 3.—The Elkington Gatic duct cover shown by the Dover Engineering Works.

Lamella roofing by Horseley Bridge and Thomas Piggott (72 D), that useful lightweight pressed steel diamond mesh for covering large areas, is progressing in its spans. The latest, we are told, is a 180-ft. span roof for Austin's factory in Birmingham.

Abraham's Hardrow roofing slates (130 F) should show the waterproofers what can be done with a 6 to 1 concrete. These tiles are only about $\frac{5}{8}$ in. thick and they don't let the water in or else Mr. L. H. Keay wouldn't use them on his extensive housing in Liverpool. An interesting point in their manufacture is that they are *rolled* and not vibrated or pressed. The standard tiles are 18 ins. by 12 ins. Their price, we understand, is between that of poor and first-class clay tiles.

Asphalts are about the same as ever, but Limmer and Trinidad (150 G) have got a new flooring called Trinazzo, which is a terrazzo with rubber instead of cement. The surface is polished as with terrazzo and the marble chippings provide the resistance to wear, while the rubber base gives the resilience. The technique was, we gather, evolved jointly by Limmer and Dunlops.

A new type of roof by Universal Asbestos (333 T) is shown in Fig. 4. The corrugated and flat layers are interleaved by this remarkable aluminium corrugated sheeting which has an insulation value, we are told, of 0·21 B.T.U.s as against 0·28 for cork. The result is a light efficient roof with a flat soffit (and therefore less painting area) which is at the same time highly insulating.

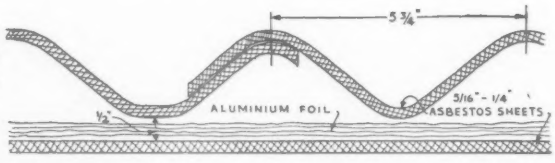


Fig. 4. — A new type of aluminium-insulated roof by Universal Asbestos.

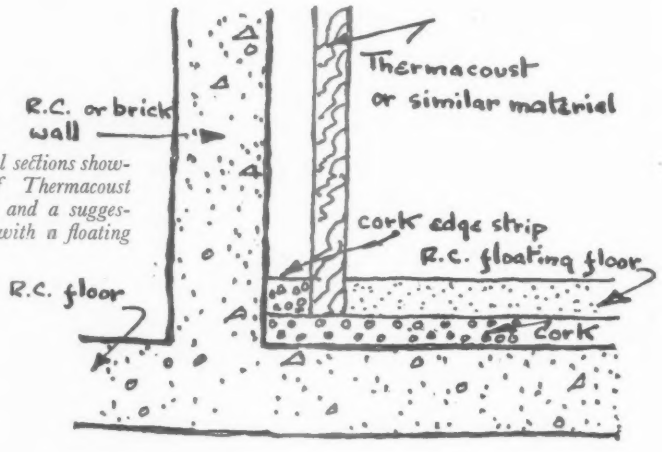
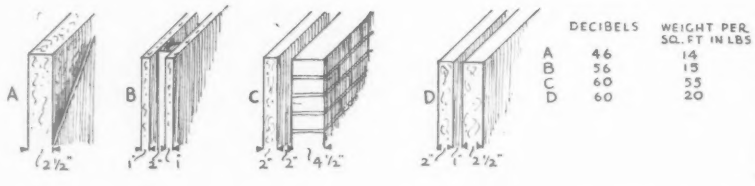


Fig. 5.—Typical sections showing the use of Thermacoust insulating slabs, and a suggestion for its use with a floating floor.



	DECIBELS	WEIGHT PER SQ. FT IN LBS
A	46	14
B	56	15
C	60	55
D	60	20

The Building Research exhibit (352 Gal.) is well worth spending a little time on. We are now getting used to seeing the fancy floating floors for sound insulation and not seeing any built in practice. We know of a case, however, which is not covered by any of the examples on show. It is a factory in Welwyn Garden City where the floating slabs are on slabs of compressed cork. Sound troubles are so largely structural that it is no small wonder that these scientific methods are not adopted in practice. We are told by this department that walls completely isolated from one another are excellent insulators. Thermacoust Products, Ltd. (97 E) have on show some typical sections of walls using their cemented wood fibre slabs. The section C in Fig. 5 is specially interesting owing to the complete absence of studding, which is rather remarkable for this type of material. This firm can show you several jobs where such partition leaves 2½ in. thick are built 8 or 9 ft. high without such studding. Now if we place such partitioning on the floating floors

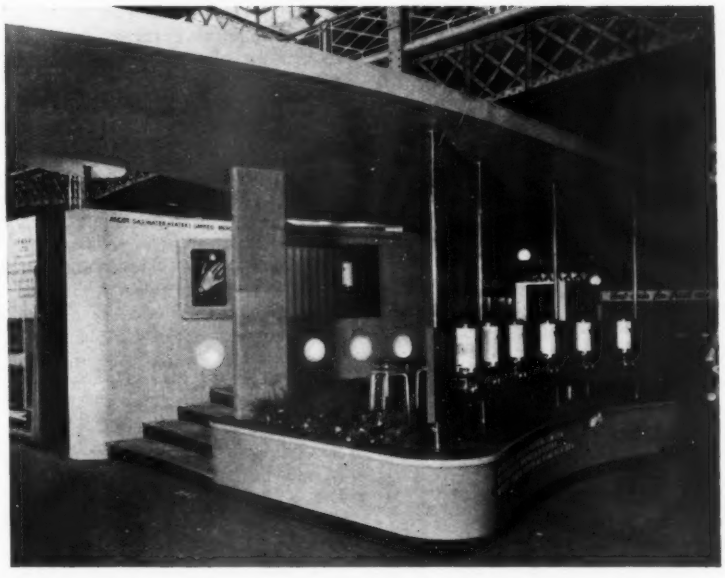
above, won't that help to solve the problem of sound-proofing? Fig 5 is a suggestion.

Several manufacturers are covering the topical subject of the day, A.R.P. The British Steelwork Association (278 O) show by means of models the various methods of providing shelter against splinters, gas and blast. The more money you spend the bigger the bomb you can keep out.

The Twisteel stand (98 E) is a small reinforced concrete bomb-proof shelter which they claim gives protection against a bomb up to 25 lb. weight. The shelter is fitted with gas and blast-proof doors complete with gas seals. They also show some interesting photographs of the effects of high-explosive bombs in Spain on various reinforced concrete and brick buildings.

FINISHES

Two years ago we expressed surprise that plastic veneers were to be found nowhere in the Exhibition, but this year they are with us. It appears that the manufacturers realized that architects, as opposed to the general public, were apt to shudder and turn pale when confronted by mottled marbling and fake-walnut finishes. With amazing penetration, therefore, they postponed exhibiting until a good range of plain colours became technically and commercially possible. Messrs. Bakelite, Ltd. (304 Q), are now showing their range, and a most attractive one it is. In addition to the ordinary veneers, which are reasonably heat-resisting, there is the blister-proof variety which will stand contact with burning cigarette ends and readily suggests itself for counter and table tops, the Post Office having already made good use of it in their newer telephone boxes. Plastic veneers are supplied in two standard sized sheets—8 ft. by 4 ft. and 7 ft. by 3 ft., smaller sizes being cut from these. The veneer is $\frac{3}{64}$ in. thick, bright or dull finish, and is usually supplied cemented on to a plywood backing. Alternatively it can be obtained as a facing to a $\frac{5}{32}$ in. Bakelite wallboard. In addition to their heat resisting properties these plastic veneers are unaffected by spilled liquids, which is being convincingly demonstrated on the stand with water, fruit-juice, vinegar and beer. Inlay and photo mural work is also possible with plastic veneers and as this is carried out in the press the finished surface is completely flush. Plastics are a comparatively new material and should be treated as such, so that now the early stages of imitation are over it is to be hoped that architects



On this page are photographs of three stands: top, Ascot Gas Water Heaters, Ltd. (No. 292 P). Architect, Rodney Thomas. Assistant, B. Ineson; centre, Uxbridge Flint Bricks, Ltd. (No. 337 T). Architect, E. Maxwell Fry; right, London Brick Co., Ltd. (No. 195, 196 J). Architect, J. R. Leathart.

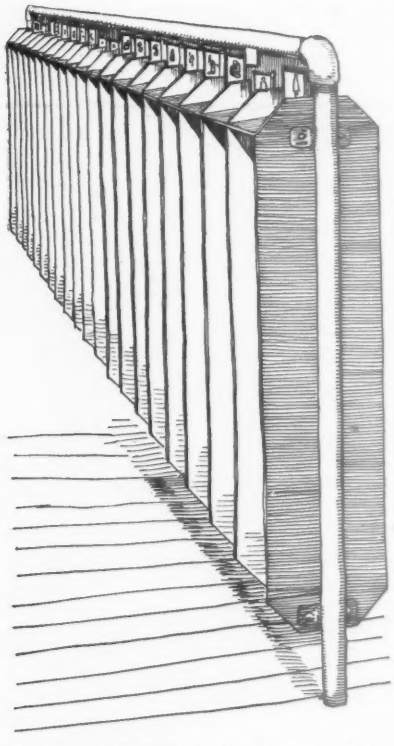


Fig. 6.—A Plymax towel-and-beaker fitment for use in nursery schools.

will make full use of its endless possibilities.

Wall coverings are many, but Messrs. Masonite, Ltd. (162 H), in addition to demonstrating this side of their product, are also showing its use as a flooring tile. In this form it is supplied ready fixed to a cement under-tile which most effectively solves the problem of laying the flooring direct on concrete.

It is perhaps worth noting here that the more intelligent wall covering manufacturers always take the trouble to evolve the right method of fixing for their material—Tentest (172 H) and Turners (169/170 H) being typical examples, for they have both developed fixing methods to suit their materials, and are thus in a position to see that it is properly used. A much better process than just selling as many yards as possible and then leaving it all to the unfortunate builder.

Messrs. Venesta, Ltd. (155 G), have introduced several new features this year, principally in connection with Nursery Schools, for which they have adapted their Plymax w.c. partitions In addition they are showing a Plymax miniature towel-and-beaker fitment (Fig. 6), each child's toilet requisites being housed in a separate open-fronted compartment. The uses of Plymax are also demonstrated in connection with A.R.P. for shelters, gas-proof chambers and as window shutters. Plymax's inability to warp even under very exacting conditions lends itself to air-locks, etc., provided laymen are not taken in by its metallic appearance and regard this material as armour-plating. You remember the armoured tanks of *Juan in China?*

An interesting adaptation of flush doors on the same stand is their use as removable office partitions available in any height up to 11 feet or so. Fixed at top and bottom and butted together with the joints covered by fillets, these form excellent temporary or even permanent walls. It is interesting to note that they may be faced with Plymax or wood veneers according to the demands of the various rooms.

It is somewhat natural under present circumstances that the attention of many exhibitors should be directed towards A.R.P. in some form or another according to their type of product. Messrs. Turners Asbestos Cement Co., Ltd. (169/170 H), for instance, are showing their Turnall Asbestos Wood reinforced with metal mesh, while the Crittall Manufacturing Co., Ltd. (167 H) have made two contributions to safety. The first of these is the Crittall-Solent Gas-Proof door constructed of sheet steel. Under normal circumstances the door is quite draught-proof, the two meeting surfaces being perfectly flat and the door fastened by two tightening lever handles. On the back of the door there is a metal box containing a tube of Densyl paste which when coated on the meeting surfaces effectively completes the gas seal in time of emergency. The second contribution is an Escape Grating for use as emergency exit from an underground shelter (Fig. 7). Here again, under normal conditions, the grating may be employed to allow light and air to enter the shelter, but when the blast of war blows in our ears, then

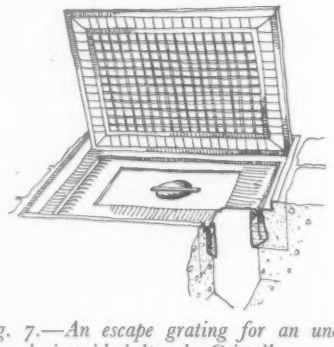


Fig. 7.—An escape grating for an underground air raid shelter, by Crittall.

imitate the action of the tiger ; stiffen the sinews, summon up the blood and insert a sheet steel gas bell into the water channel incorporated in the frame. This renders the exit gas-proof at a moment's notice. The grating has been tested to stand a load of 10 tons. Messrs. Crittall are also showing pressed steel cork-filled flush doors with rebated edges forming a double draught seal, and one of their most interesting exhibits to architects will be their standard french doors, because in place of the usual single, screwed, sheet-steel kicking panel they have welded two sheet-steel panels one each side of the frame. Believe it or not, but the result is a well-nigh whip-proof standard section french door at no extra cost.

Yet another exhibit on the same stand is the pressed-steel glazed partitioning. Partitions of this type are by no means new, but the design of this one is particularly appealing. Accordeon-pleated metal gates to lifts are familiar to most of us now, but what is not generally so well known perhaps is that the same gates may be used for really large garage entrances and similar openings (Fig. 8). This the Bolton Gate Co. are demonstrating on Stand 55 D,

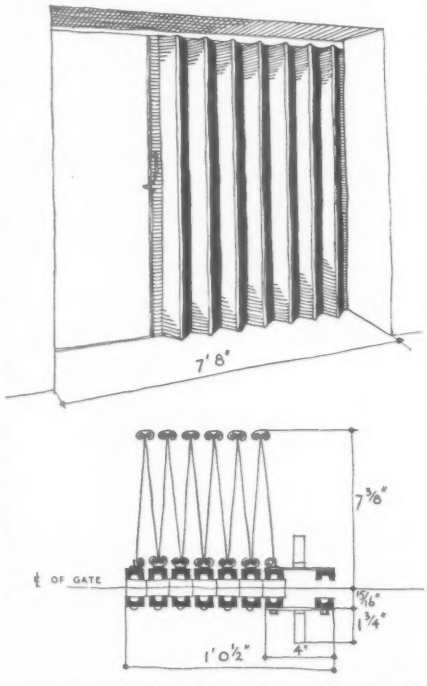
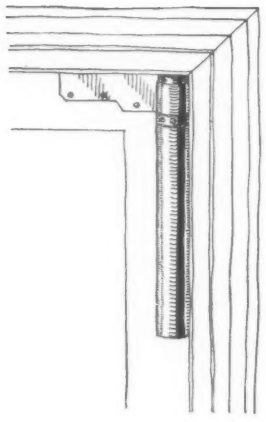


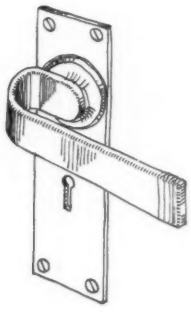
Fig. 8.—Sketch and plan of accordion-pleated metal gates by the Bolton Gate Company.

in addition to other types of collapsible gate, all of which may be operated either by hand or electrically. There is also a new vertically folding counter-balanced type for bars and shop counters.

Messrs. Robert Adams, Ltd. (104 E), have two door gears of particular interest. The first—a sympathetic self-closing gear for lift or other double doors—causes both doors to open together whichever leaf is moved. The second is a most unobtrusive automatic door closer in the form of a large butt hinge (Fig. 9).

Another automatic door-closer of note is the Bescot, by Messrs. Nettlefold and Sons, Ltd. (200 J). This incorporates double compression springs and, although these necessarily vary in strength for different types of doors, the dimensions and price of the closer remain constant. They also show a new pattern handle. (Fig. 10).





Left, Fig. 9.—A door closer by Robert Adams ; above, Fig. 10, a new handle by Nettlefolds.

GLASS

New strides made by this old material in the last few years have been tremendous, and the possibilities are well demonstrated in the stands of Messrs. Pilkington Bros., Ltd. (111 F, 348 V, 336 T) and the other glass firms. If Messrs. Pilkington's Hall of Glass lacks distorting mirrors, one feels these must be the only form of glass absent. The mirror wall itself is sufficiently confusing, but proves to be particularly interesting when one realizes that the flow of lines of images of objects reflected is quite uninterrupted by the joints between adjacent sheets. The face of the mirror wall, although composed of several sheets, is perfectly true in plane, due to the use of Twin Ground Plate which ensures a face as true as the backing.

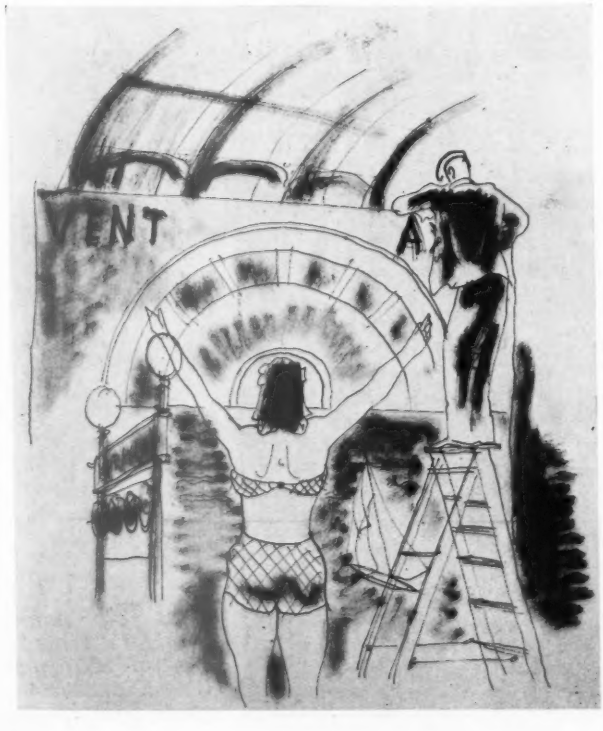
Messrs. Glazebrooks, Ltd.'s (284 P) liquid glaze for wall and other surfaces is well known, but they have now produced an attractive synthetic dressing specially for the treatment of swimming pool interiors and any other surfaces in constant contact with water. This new development has proved to be outstanding in its resistance to alkali action in new cement or concrete and does not soften, peel, flake or blister. Two coats are recommended, and a cement tile is shown glazed in an attractive shade of blue, immersed in water.

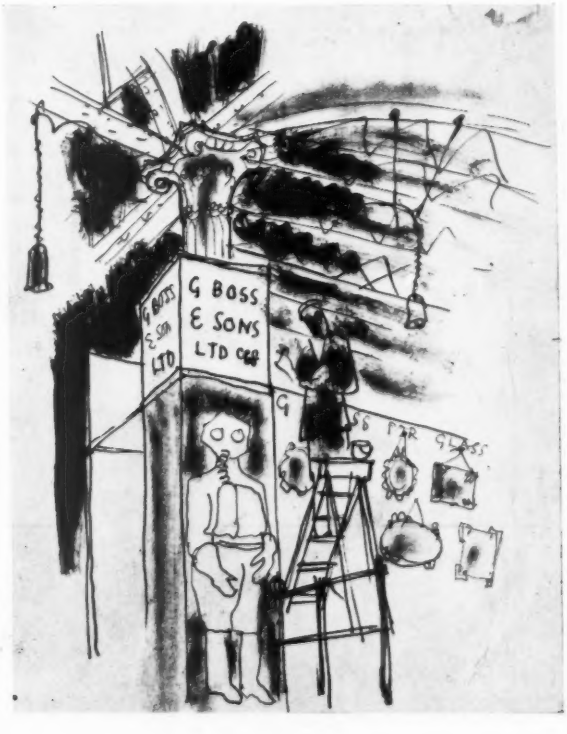
On Stand 103 E Messrs. Cellon have a photograph showing their shade measurer in use. This is an ingenious instrument whereby the exact shade of a paint on a wall can be measured on a job and perfectly matched up at the works, but we should have liked to see it in action.

On Stand 52 D Messrs. Silexine, Ltd., are demonstrating their stone paint for external walls in all its shades. As a basis for this they have constructed their stand of a brick new to me. This is the Rhom, and it has been invented by Mr. W. S. Grice. From its name one might gather that it is not rectangular in plan, but rhomboid. One of the many features of this brick, which has been manufactured as a sample only by Uxbridge Flint Bricks, Ltd. (337 T), the British branch of Hunziker, is that a continuous vertical joint can be obtained in stretching bond, and bonded at that. No doubt we shall hear more of this product presently. In the meanwhile it is amusing to imagine the faces of certain people when asked to lay bricks measuring 59° 12′ at the angles. The Uxbridge Flint Brick itself is being shown in the full range of pleasantly graduated colours. Its crushing strength is 700 tons per square foot.

HEATING AND HOT WATER

Among the boilers and geysers the tidying-up process noted at the last exhibition has been going on steadily, and the multi-point heaters are mostly simple rectangular shapes with the pipe runs sensibly arranged so that the plumbing can be neatly carried out. Ewarts (296 Q) have a new multi-point heater with all the now usual safety devices as well as a small flint lighter for use if the pilot flame should go out. The price of this model is £12 10s. and construction is straightforward, so that maintenance should be easy. Pottertons (319 S) have some neat gas-fired thermal storage heaters, and it is interesting to note that these can be obtained without the lagging if





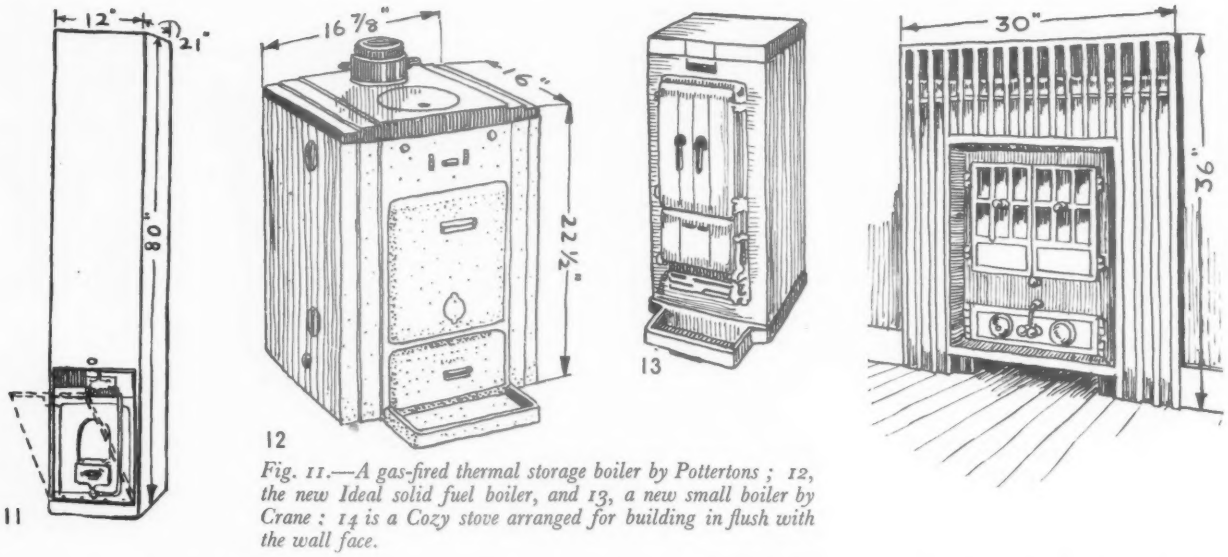


Fig. 11.—A gas-fired thermal storage boiler by Pottertons ; 12, the new Ideal solid fuel boiler, and 13, a new small boiler by Crane : 14 is a Cozy stove arranged for building in flush with the wall face.

necessary, so that it should be possible to make the installation almost invisible, though the standard finish is clean enough to satisfy the most exacting (Fig. 11).

Steel radiators welded up from sheet are shown by Steel Radiators, Ltd. (269 N). They are a good deal lighter than the cast-iron types and are very popular in their native country of Sweden. Arrangements are being made to start manufacture over here, and a factory has already been started.

In the solid fuel section quite a lot of progress has been made ; for years the coal-fired boilers and stoves have kept the old cast-iron finishes plastered all over with meaningless pattern, but competition from the cleaner forms of fuel has at last had the desired result —the new Ideal boiler, for instance, looking quite as clean as its gas-fired sister (Fig. 12). The price is £8 12s. 6d. finished in vitreous enamel, and it can be seen on Stand 300 Q. Much the same can be said of Crane's new Carlton boiler (Fig. 13), which can be seen on Stand 291 P ; finish is again in vitreous enamel. In the cooker and stove section it is not unreasonable to assume that a fair stimulus has come from the Aga people and from Betty Joel's Esse stove, for both these units were very much better looking than anything seen before in this field. But whatever the reason, it is certain that at last the Cozy stove looks really quite well. One does not wish to be unkind, but the fact remains that although nearly all architects know quite well that the Cozy stove is very efficient they have hesitated to use it because its appear-

Left : The Architectural Press stand. Designed by H. Myles Wright, in association with G. Brian Herbert.

ance has been not at all good. The firm has now produced a flush model for building in (Fig. 14), and although there are one or two ways in which the detail work could be improved, it is none the less a great deal better looking than anything before produced by this firm. We were told on the stand (No. 248 M) that this model has been on the market for some years, but we have never seen it before, nor do we know anyone else who has, so it would seem that the manufacturers have been unwise to be so modest.

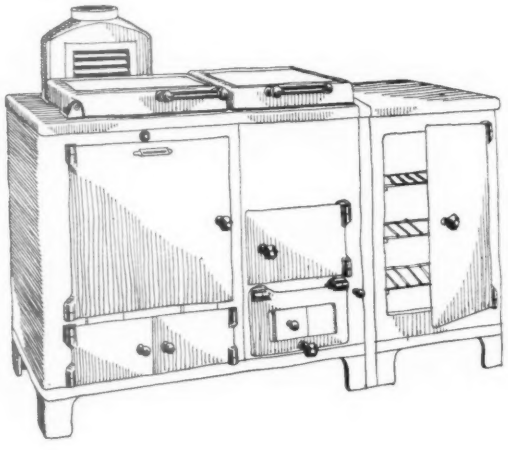
low price the oven is exceptionally large and the lagging is properly carried out, the hot plate covers being properly counterbalanced with adjusting screws to allow for any progressive weakening of the spring. Stand 13 B.

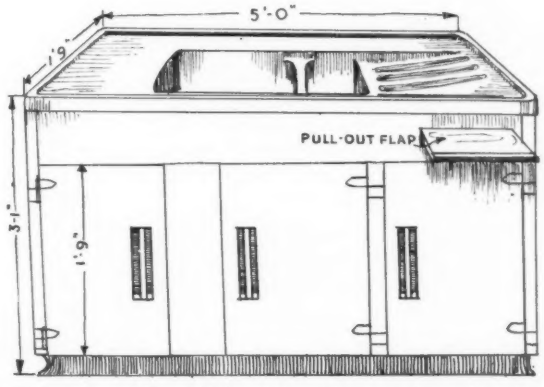
Electric cookers keep up a high standard of appearance in the more expensive types, one of the best being the Jackson type 201 J (Fig. 21). This can be seen on Stand 142 G. At the bottom there is a 2 kilowatt electric fire for warming up the kitchen when the cooker is not in use.

job for which Flavels are well suited, as they are manufacturers of *fireplaces*, and are not tied to any one fuel.

KITCHEN EQUIPMENT

Kitchen cabinets maintain a fairly high level of design, though in some of the cheaper types for low cost housing the finish is none too good, and construction is not always heavy enough to stand hard wear, an even less excusable fault. A high standard, however, is shown by Kandya (8 B), Peerless (323 S) and Kitchendom (270 O).





Left, Fig. 15. — The Triplex heat storage cooker with plate-warming cupboard; above, fig. 16, a luxury stainless steel sink by Johnson & Co.

COOKING

While everyone admits the virtues of the heat storage type of cooker, the fact remains that the lack of a hot water supply from the same fire can be a

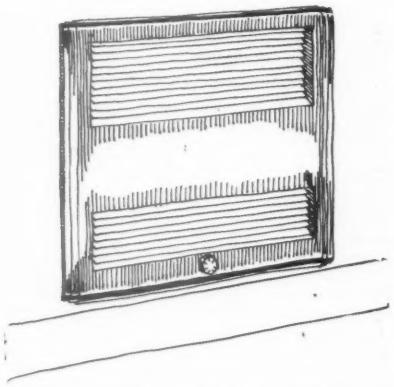
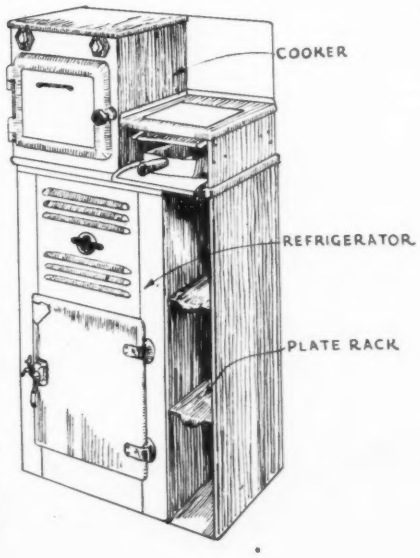


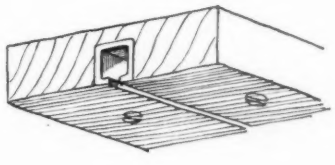
Fig. 17.—The 2-kilowatt Thermovent heater by E. K. Cole.

disadvantage. It is, of course, perfectly true that a single fire cannot hope to be really efficient if it is asked to do two different jobs, but there are times when capital expenditure is of more importance than running costs, and here the new Triplex 22 cooker should come in useful (Fig. 15) for it is provided with a boiler and the price is as low as £50, with the plate-warming cupboard at the side as an extra. In spite of the

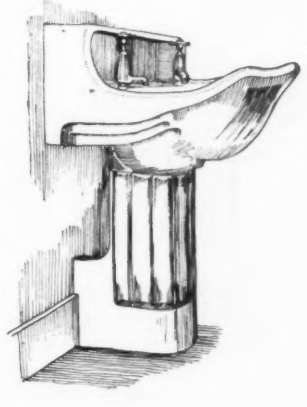
Independent heaters include E. K. Cole's new Thermovent designed by Mr. Wells Coates; this is produced as a free-standing portable type, but it can also be arranged for building in flush with the wall surface as shown in Fig. 17. Loading is 1 or 2 kilowatts and the stand number is 147 G.

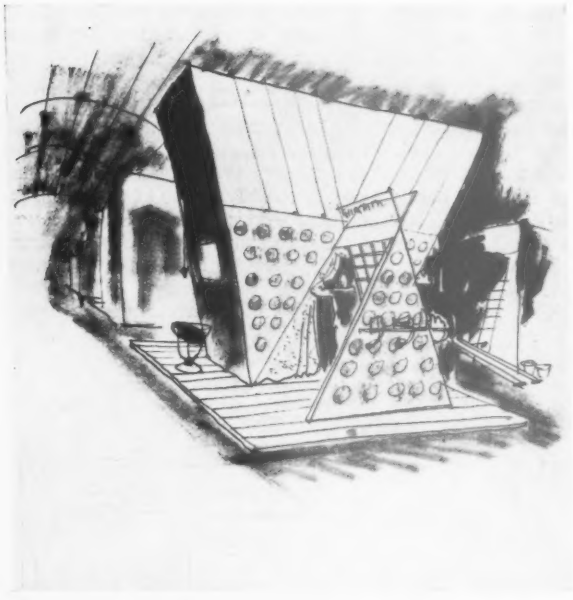
Gas fires show no radical departure from current practice, though it is worth examining Flavel's Academy gas lighted coal fire. In this particular model a good deal of attention has been paid to keeping the whole thing tidy, a

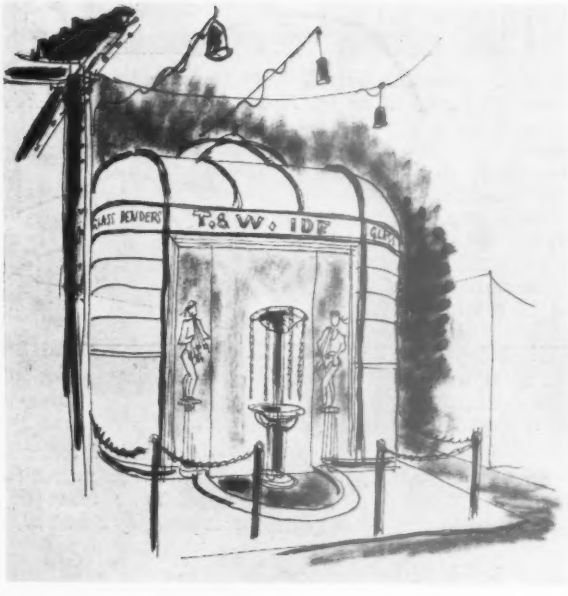


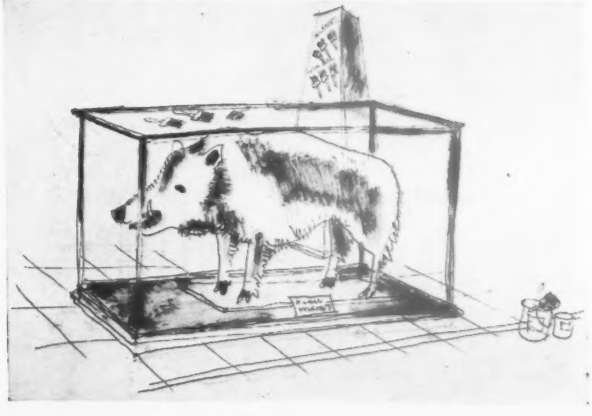


Left, Fig. 18.—A combined cooker and refrigerator unit by Zeros Sales; above, (19), a new Bakelite curtain track; below (20), a basin for hair-shampooing by Adamsez.









On this last stand we also noticed a new sink and draining board material which is being marketed in this country under the name of Silicite. It is composed of compressed asbestos and cement, and the result is obtainable in four colours, which go right through the material, In practice the combined sinks and draining boards look very well, to the touch they feel rather like a soft stone, and the price is very moderate, about half that of a stainless sink of the same size. This material is also used for the

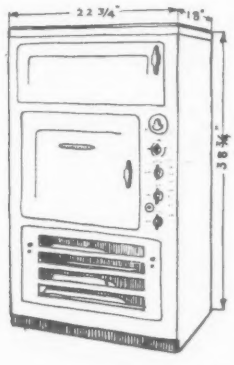


Fig. 21.—The Jackson type 201 J cooker has a 2-kilowatt fire for warming the kitchen when the cooker is not in use.

manufacture of baths, lavatory basins, w.c.s and flushing cisterns, while flat sheets and panels are available in all thicknesses from $\frac{3}{8}$ to $1\frac{1}{4}$ inches.

MISCELLANEOUS

Fixing devices include the new Rawlplug screw anchor, a metal plug with a flanged head to prevent it being driven too far (Stand 11 B). There is also a new type of Bakelite curtain track (Fig. 18), made by the Dap Manufacturing Co. and shown on Stand 180 H.

A piece of final and purely personal advice. Do you like a really large sponge in your bath, and do you always find that the one you want costs about a pound? Go to the United Sponge Co. (224 L) and get one about as big as your head for five or six shillings. This is the very thing to do when you are thoroughly tired of architecture and really want something for yourself.

★

Further shorter notices of Exhibits appear on pages 508-510.

WORKING DETAILS : 685

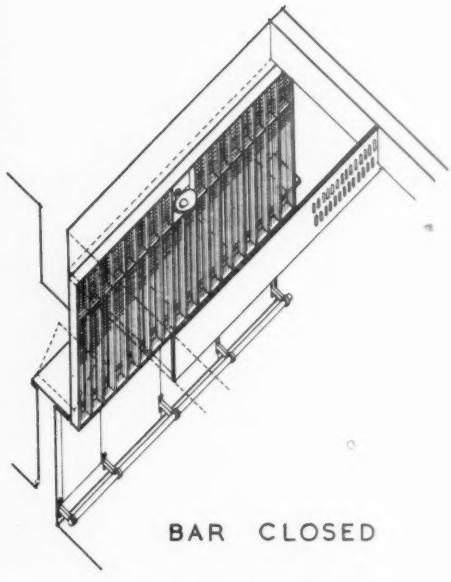
BAR • ISOBAR CLUB, LAWN ROAD, HAMPSTEAD, N.W. •] MARCEL BREUER & F. R. S. YORKE

The club is on the ground floor of an existing block of flats and is a reconstruction of rooms which formerly formed part of the kitchens and service department. The illustrations here show two views in the bar. The bar fitting is in teak and deal. The teak is natural colour : the deal painted white. Walls and soffits are painted white. The law requires a screen that can close the bar if the club remains open after " time " has been called. This is made in birch, with a square mesh of white bronze. It is held against the ceiling when the bar is open and is lowered to a vertical position when the bar is shut.

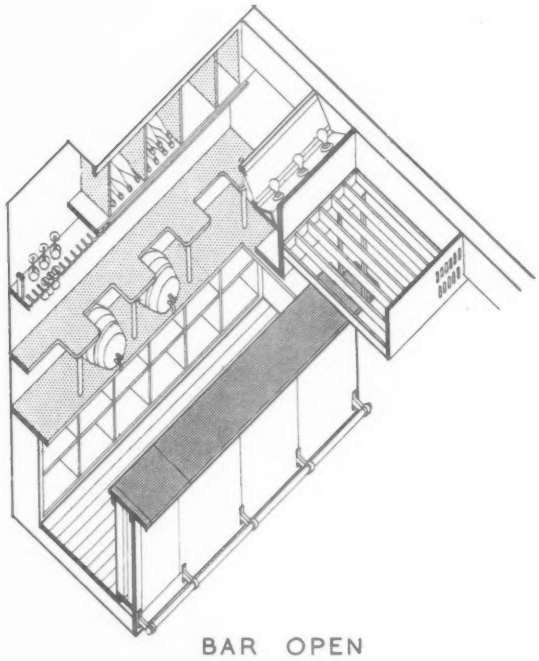
Tables, chairs and stools are birch. The floor is covered with fibre matting. Walls generally are lined with butt-jointed birch plywood on battens, but the wall space alongside the bar is covered by a large scale black and white map of Hampstead, with streams and ponds painted blue and the whole lacquered with special clear varnish.

WORKING DETAILS : 686

BAR • ISOBAR CLUB, LAWN ROAD, HAMPSTEAD, N.W. • MARCEL BREUER & F. R. S. YORKE



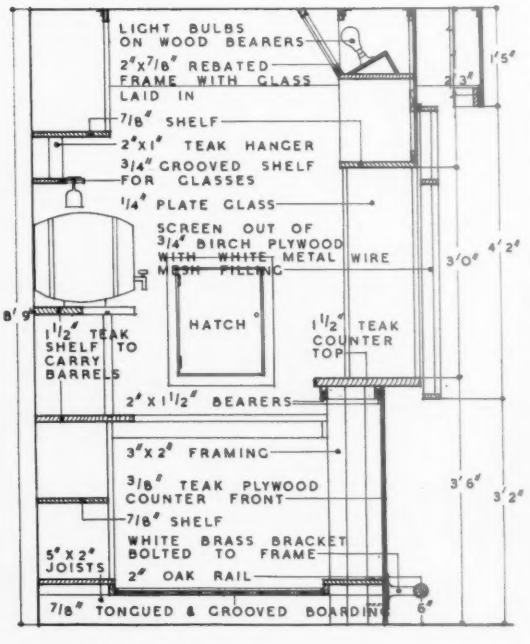
BAR CLOSED



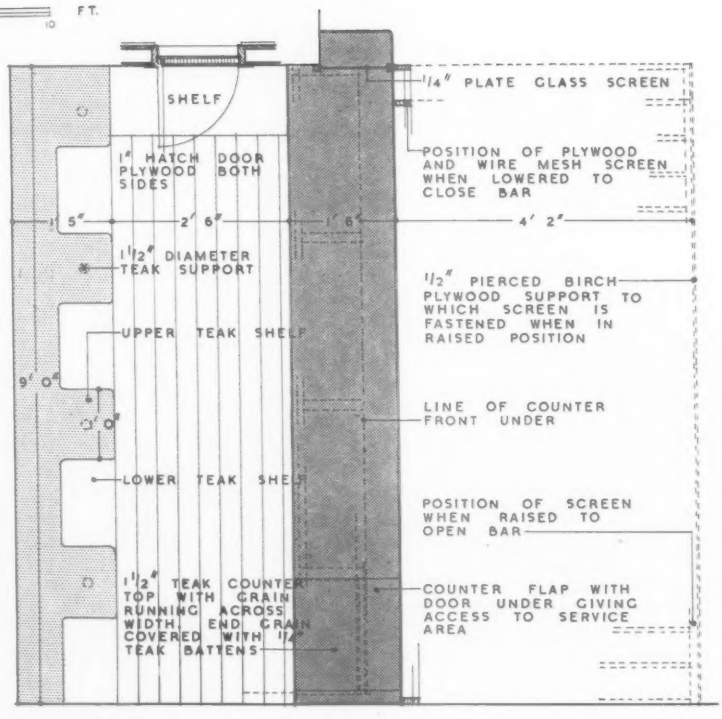
BAR OPEN

AXONOMETRICS

SCALE: 1 0 1 2 3 4 5 10 FT.



SECTION



PLAN

SCALE: 1 0 1 2 3 4 5 6 7 8 9 10 FT

Axonometrics and details of the bar illustrated overleaf.

The Architects' Journal Library of Planned Information

INFORMATION SHEET
SUPPLEMENT

SHEETS IN THIS ISSUE

663 Building Equipment

664 Sheet Lead Work

In order that readers may preserve their Information Sheets, specially designed loose-leaf binders are available similar to those here illustrated. The covers are of stiff board bound in "Rexine" with patent binding clip. Price 2s. 6d. each post free.

Sheets issued since Index :

601 : Sanitary Equipment
602 : Enamel Paints
603 : Hot Water Boilers—III
604 : Gas Cookers
605 : Insulation and Protection of Buildings
606 : Heating Equipment
607 : The Equipment of Buildings
608 : Water Heating
609 : Fireplaces
610 : Weatherings—I
611 : Fire Protection and Insulation
612 : Glass Masonry
613 : Roofing
614 : Central Heating
615 : Heating : Open Fires
616 : External Renderings
617 : Kitchen Equipment
618 : Roof and Pavement Lights
619 : Glass Walls, Windows, Screens, and Partitions
620 : Weatherings—II
621 : Sanitary Equipment
622 : The Insulation of Boiler Bases
623 : Brickwork
624 : Metal Trim
625 : Kitchen Equipment
626 : Weatherings—III
627 : Sound Insulation
628 : Fireclay Sinks
629 : Plumbing
630 : Central Heating
631 : Kitchen Equipment
632 : Doors and Door Gear
633 : Sanitary Equipment
634 : Weatherings—IV
635 : Kitchen Equipment
636 : Doors and Door Gear
637 : Electrical Equipment, Lighting
638 : Elementary Schools—VII
639 : Electrical Equipment, Lighting
640 : Roofing
641 : Sliding Gear
642 : Glazing
643 : Glazing
644 : Elementary Schools—VIII
645 : Metal Curtain Rails
646 : Plumbing
647 : Veneers
648 : U.S.A. Plumbing—V
649 : U.S.A. Plumbing—VI
650 : Ventilation of Factories and Workshops—I
651 : School Cloakrooms (Boys)
652 : U.S.A. Plumbing—VII
653 : Plumbing
654 : U.S.A. Plumbing—VIII
655 : School Cloakrooms (Girls)
656 : Ventilation of Factories and Workshops—II
657 : Floor Construction
658 : Partitions
659 : Equipment
660 : Asbestos-Cement Decorated Sheets
661 : Aluminium
662 : Sound Resistance

663. THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

DIAGRAMS SHOWING CONSTRUCTORS · ADJUSTEEL · SHELVING UNITS :

Components consist of posts and shelves, to which may be added backs, uprights, bin fronts, bin dividers, doors, and other accessories, to adapt the shelving to the storage of any specific office or factory commodity.

2"x1" standard load-supporting angle posts punched at 2" centres on both faces for adjustment of sheet steel shelves.

Standard overall heights 3'3" every 12" to 10'3".

Standard overall depths of unit, 12", 15", 18", or 24".

Standard overall widths, 24", 30", & 36".

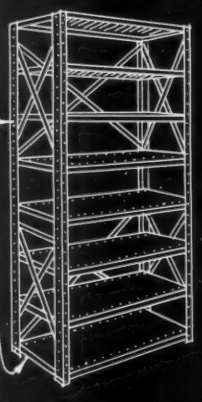
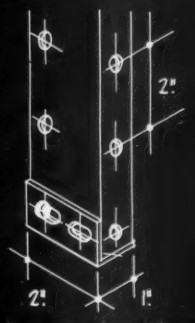
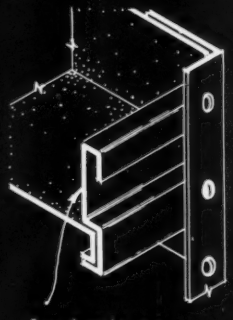


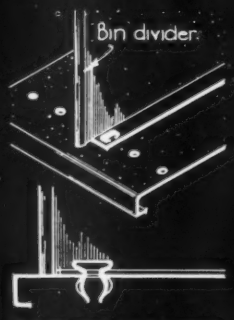
DIAGRAM 1: Open type shelving composed of angle posts & shelves diagonally braced at ends and back.



Punched angle feet 2" long are bolted to the base of all angle posts as shown.



Bin fronts are available in 2", 3", 4", & 6" heights.



Isometric sketch and section showing the "Pressnap" hand-fixed fastener for subdividing shelf compartments without bolts & nuts.

Each unit is complete in itself and may either form a single faced stack, or be used back to back with a similar unit to form a double faced stack.

Sheet steel upright bolted to wide flanges of posts.

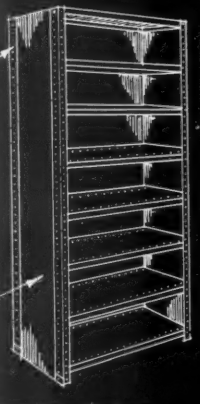
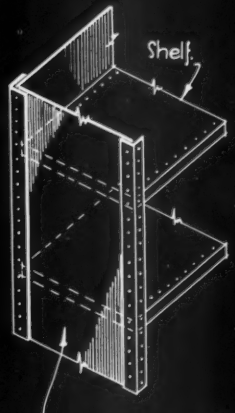


DIAGRAM 2: Closed type shelving composed of angle posts, shelves, and the addition of sheet steel back & uprights.



Flat sheet steel back and uprights, converting the open type into the closed type, permit the braces to be omitted.

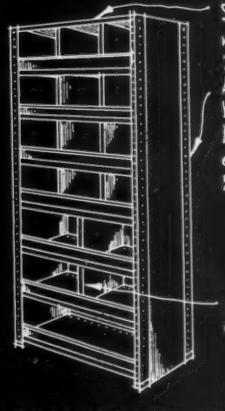


DIAGRAM 3: Closed type shelving with all shelves fitted with bin fronts & the upper ones with bin dividers.

For standard methods of reinforcing shelves to carry extra loads see Information Sheet N°2 of this series.

Overall depth, 12", 15", 18", or 24".

Overall depth of lower portion 18", 24", or 30", by 3'3" high.

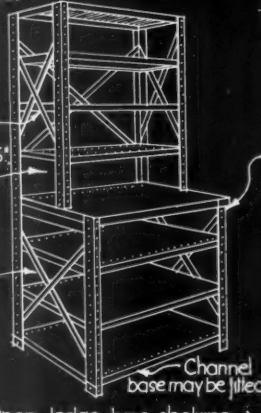
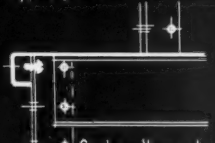


DIAGRAM 4: Open ledge type shelving same construction as Diag.1, but greater depth at bottom to provide a working ledge.



Section through ledge showing reinforcement to support upper section.

Section through counter top showing insulating material between double top.

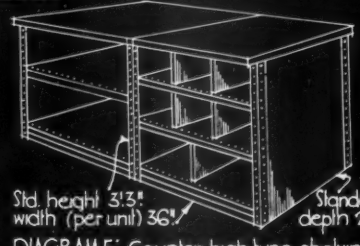


DIAGRAM 5: Counter high type shelving may be fitted with bin fronts & dividers if desired, or doors. Top forms reliable working surface.

The closed ledge type shelving units may be fitted with bin fronts and bin dividers as required. See Diag. N°3 above.

For assembly of standard door & drawer components see Inf. Sheet N°2 of this series.

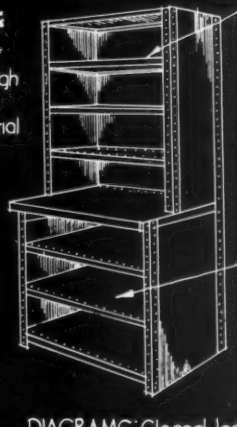


DIAGRAM 6: Closed ledge type shelving, same construction as diag. 2, but greater depth at bottom to provide a working ledge.

Information from Constructors Ltd.

INFORMATION SHEET : BUILDING EQUIPMENT : SHELVING UNITS : ADJUSTABLE STEEL : N°1.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A. Beyfus

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET
• 663 •
BUILDING EQUIPMENT

Product : Shelving Units—Adjustable Steel.

General :

This is the first of a series of Sheets dealing with Constructors' adjustable steel shelving units.

Material :

Steel.—The main advantages of steel shelving are its economy of material, simplicity of design and space-saving. Fire risk is practically eliminated, depreciation is negligible, cleanliness, and resistance to damp, rot and vermin makes this form of storage permanently satisfactory under almost any conditions. In addition, adjustability of the units and interchangeability of components, enables steel shelving to be re-used for almost any purpose after alterations or removals.

Unit Construction :

Each unit or bay is complete with its own four posts. Thus re-arrangement or removal of any one of a range of units is accomplished simply by disconnecting without disturbance of shelves or other components.

Stacks consist of two or more bays bolted together, and can be either single-faced—accessible from one side only, or double-faced—accessible from both sides. Double-faced stacks consist of bays of the same width and height placed back to back, with or without a common back between, and may be any number of bays in length. These require a gangway on each side.

Components :

(a) *Angle Posts.*—The angle posts are the load-supporting members, and have a 1-in. and a 2-in. face forming a "T" when placed together. The 1-in. face fits against the front of the shelf, and the 2-in. face against the end. Both faces are punched with bolt holes to provide for eight point attachment of the shelves. The holes are at 2-in. centres, giving a wide range of adjustment. All posts are interchangeable and angle feet can be attached to prevent damage to flooring.

(b) *Shelves.*—Shelves are adjustable every 2 ins. in the height of the bay. Each shelf is fixed with eight bolts and can be quite easily removed and replaced when required. Each shelf is formed into a channel section on all four edges. Back and front edges of the shelf are punched with holes at 2-in. centres for the addition of dividers and other components.

(c) *Bracing.*—Sway braces are employed with open type shelving to ensure rigidity (see diagrams 1 and 4 overleaf).

(d) *Sheet Backs and Uprights.*

Sheet Backs.—For use at the rear of single-faced bays, and to separate bays placed back to back. They are bolted to the narrow flange of the angle posts. A centre row of bolt holes is provided for the attachment of clips to keep the back tight against the shelves where very small parts are to be stored, and to obviate drumming.

Sheet Uprights.—These are to close the sides of bays and between adjacent bays where the shelving is a stack of more than one unit. They are bolted to the wide flange of the angle posts.

(e) *Bin Fronts.*—For use with closed type shelving and for converting ordinary shelves into bin or tray-like storage spaces. Heights of 2-in., 3-in., 4-in. and 6-in. are available and fixing is by means of a nut at each end. Details overleaf.

(f) *Bin Dividers.*— Where sub-division of the shelving space into bins is required "Pressnap" dividers are used. These can be added at any time as the shelves are perforated and the divisions can be fixed in position by patent "Pressnap" fasteners. The ease of fixing and rapidity of removal of these fasteners enables adjustment of the dividers to suit changing stock requirements. As with shelves, the dividers are adjustable on 2-in. centres, and are obtainable in a variety of heights to suit shelf spacing, and depths of 12 ins., 15 ins., 18 ins., 24 ins. or 30 ins. to suit parallel and ledge type shelving units.

(g) *Other Components.*—For particulars of other standard components, such as doors, drawers, end irons, sloping shelves, location boards, card holders, etc., see Sheet No. 2 of this series.

Ledge Type Shelving :

As shown in diagrams 4 and 6, open or closed ledge type shelving is very similar to the open or closed parallel type, except that the bottom section is of greater depth than the upper section. The ledge created provides a very useful working surface. A reinforced ledge shelf is fitted to withstand heavy duty.

Counter High Type Shelving :

These units are made in a standard height of 39 ins. Specially designed counter tops are fitted and superimposed upon the ordinary shelf, thus forming a double thickness which is packed with insulating material to prevent drumming.

Erection :

Unless otherwise stated, all shelving is delivered ready for erection by the customer on site. Shelving should be erected one bay at a time, starting from the left, and each unit should be assembled flat on the floor, directly in front of the space where it is to be located, and then up-ended into position. Full directions for erection are supplied by the makers, or the makers will erect the shelving themselves.

Finish :

All shelving is finished in standard olive green stoved enamel. Other finishes can be supplied at special prices.

Prices :

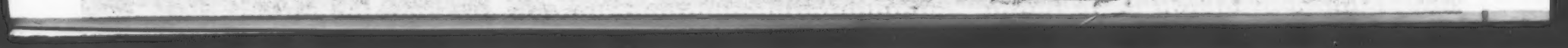
Owing to the large number of arrangements available the catalogue issued by this Company only includes a comparatively small number of priced units. Prices for other designs, and suggestions and layouts are available from the makers.

Manufacturer : Constructors Limited

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

Telephone : Erdington 1616

London, Glasgow, Manchester, and Newcastle-upon-Tyne.



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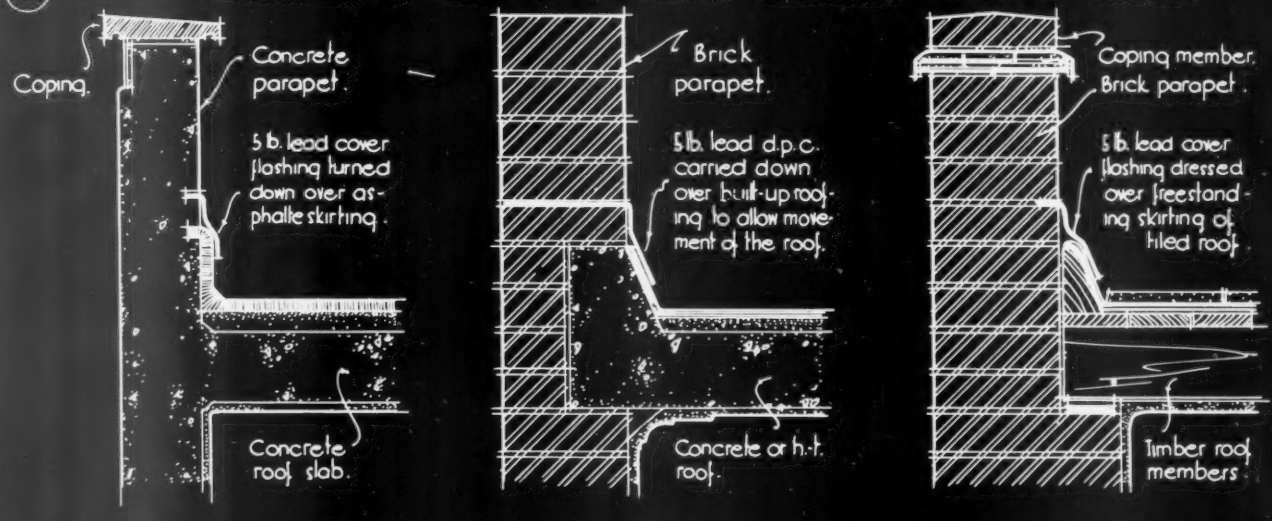
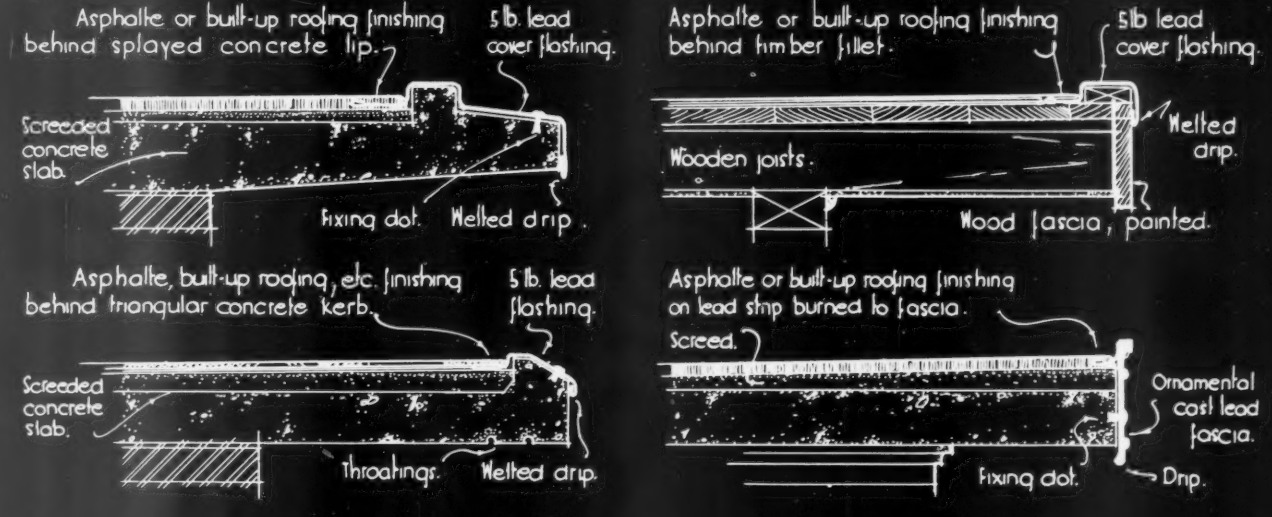
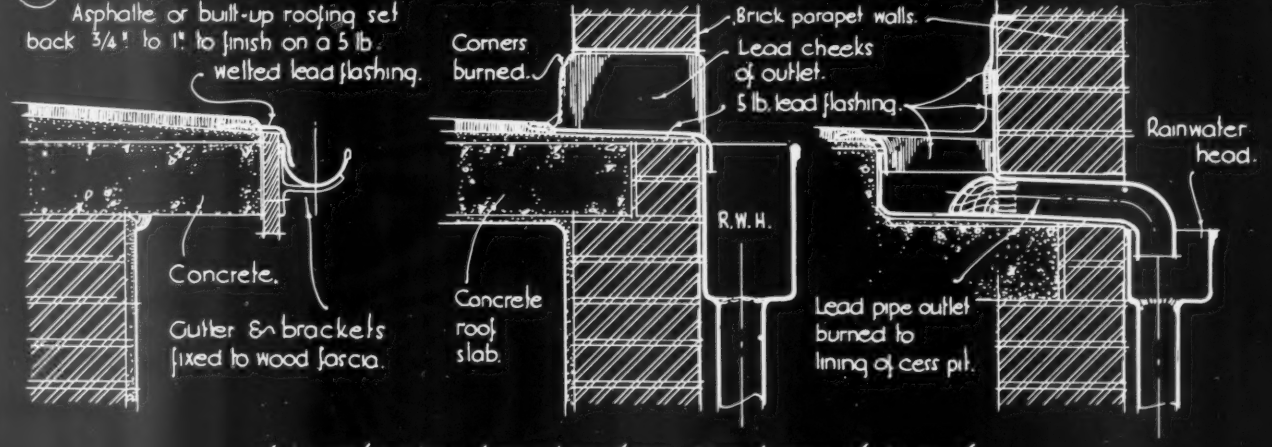
(A.) COVER FLASHINGS AT FLAT ROOF FINISH AGAINST PARAPET WALLS :



(B.) LEADWORK TO FLAT ROOF SLABS FINISHED WITHOUT PARAPETS OR HIGH KERBS :



(C.) LEADWORK AT EDGES OF FLAT SLABS DISCHARGING INTO EAVES GUTTERS & R.W. OUTLETS :



Information from Lead Industries Development Council.

INFORMATION SHEET : FLASHINGS TO FLAT ROOFS : No 51.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Oscar A. Bayne.

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INFORMATION SHEET

• 664 •

SHEET LEAD WORK

Subject : Lead Flashings to Flat Roofs

General :

This Sheet deals with methods of flashing flat roofs where they adjoin parapets or other vertical finishes, the provision of curbs and stops to roofs without parapets and the formation of outlets.

Cover Flashings :

These are provided to prevent the ingress of water between the vertical parapet or wall and the horizontal roofing layer, and are designed to allow of a certain amount of movement between the one part and the other. The width of lead cover flashings depends upon the position of the joints in the wall above, but will not be less than 5 ins. The top edge is turned not less than ¾ in. into a raked joint or groove cut into the masonry and wedged at 12 in. centres with lead wedges. These may be formed of a small roll of sheet lead, or may be cast for the purpose. The joint is pointed, preferably with lime mortar gauged with not more than one part in ten of Portland cement. Alternatively, on stonework the flashing may be fixed by running molten lead into the groove and subsequently caulking. To prevent the flashing lifting in the wind the bottom edge may be held by lead tacks 2 ins. wide at about 2 ft. 6 in. centres. No single length should exceed about 8 ft., running joints being lapped 3 ins. to 4 ins. The weight of metal may be 5 lb. milled sheet for exposed situations and on monumental work and 4 lb. sheet for small domestic and factory work. Where the flashing is narrow or does not hang vertically, the lower edge should be turned back on itself or welted to provide an air space to prevent capillary attraction and to stiffen up the bottom edge.

Details A show typical cover flashings. Recently efforts have been made in other than reinforced concrete and frame buildings to isolate the roof slab from the rest of the structure so that its inevitable thermal expansion and contraction should not crack the parapet walls. In such cases the waterproofing of the roof slab should not be attached to the wall, but should finish on a curb or fillet fixed to the roof. The entrance of rain between the wall and the curb is prevented by the cover flashing which is free to move at its lower edge. This finish is always best for wooden roof structures.

Details B show various finishes to verges or curbs without gutters. Lengths of individual sheets should not exceed about 8 ft. Running joints may be lapped 4 ins., but are better double welted. Cast lead fixing dots, or brass screws soldered over should be provided at 3 ft. to 4 ft. centres to prevent the lead lifting where it is of more than, say, 6 ins. or 8 ins. in width. The bottom edge should be welted to provide a clear drip and increase the stiffness. In cast lead ornamental fascias the lap may either be formed on the spigot and socket principle as part of the pattern or a flush butt joint is permissible provided a strip of sheet lead 5 ins. to 7 ins. wide is placed behind each joint to prevent the access of water. Fixing dots or screws can be rubbed down flush and left invisible.

Details C show outlets to gutters and stack-heads. The lead cheeks may be bossed up, or cut out and leadburned. Pipe outlets should always be provided with gratings to reduce the risk of blocking with leaves. These should have a wide, smooth seating to prevent damage to the lead. Cess pits on large roofs should always be provided with an additional weir or " gargoyle " overflow to prevent the water rising above the upstand under the flashing should the outlet be blocked or during time of exceptional rain. Such outlets should discharge over and clear of the stack-head to act as warnings.

Note.—The surface of all new Portland cement screeds and concrete should be covered with building paper or felt to prevent mechanical damage or corrosion of the lead due to free alkalis in the cement during and shortly after the setting process. Where it is not convenient to use paper, as with narrow strips or vertical faces, the cement should be coated with bitumen.

Issued by : The Lead Industries Development Council

Address : Rex House, 38 King William Street, London, E.C.4

Telephone : Mansion House 2855

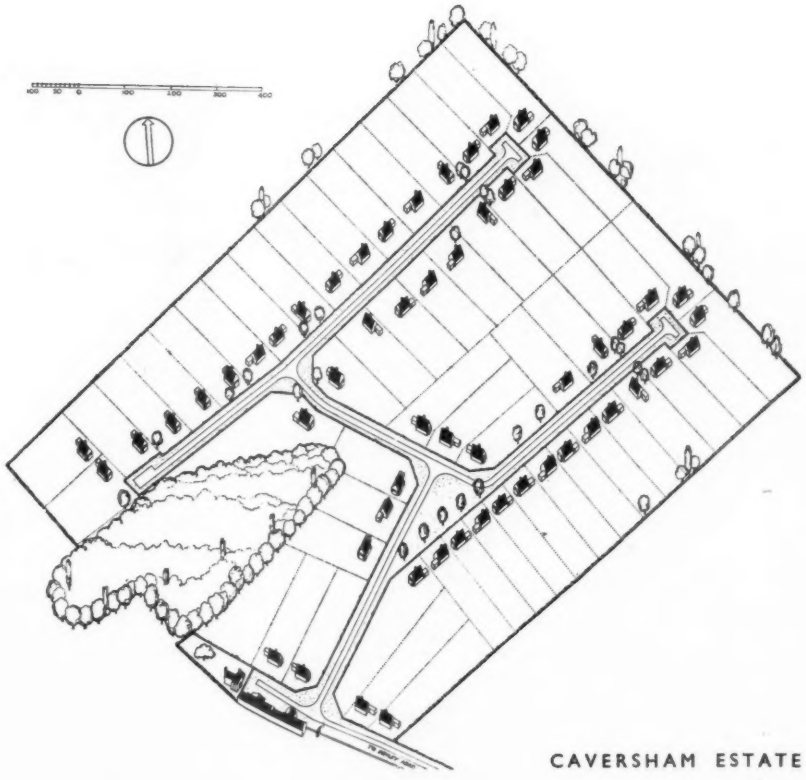
COTTAGE HOMES, LAND SETTLEMENT ASSOCIATION

DESIGNED BY A. G. SHEPPARD FIDLER

PROBLEM—*Detached houses on half-acre holdings for older unemployed men and families from Special Areas. The fathers are expected to cultivate gardens, while children, when older, will find employment in prosperous industrial areas near estates.*

Above is a general view of the Caversham scheme, with, below, a typical individual house. To the right is the Caversham Estate layout plan.

The axonometric drawings showing site layouts are by B. C. MAYNARD.



CAVERSHAM ESTATE

F

COTTAGE HOMES, LAND SETTLEMENT ASSOCIATION

SITES—*Rural in character but near prosperous industrial areas. Suitable sizes of schemes were considered to be between 30 and 60 houses. Roads are private, but conform to byelaw widths ; concrete carriageways are 12 or 14 ft. wide with wide grass verges.*

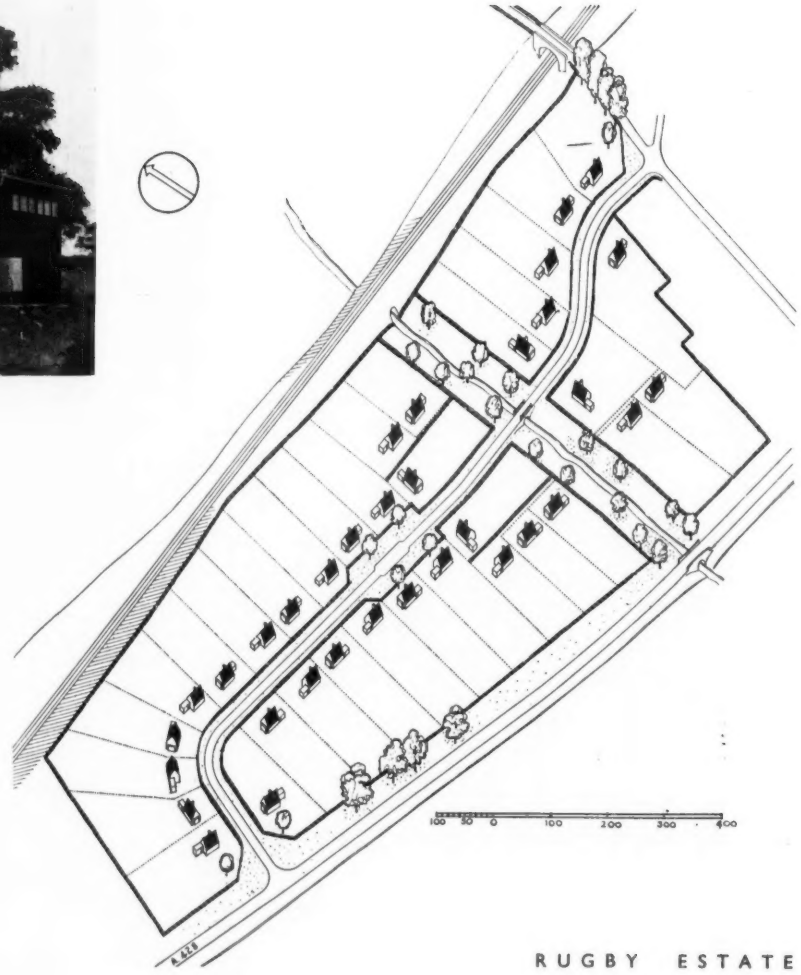
Three schemes have main drainage, the other has cesspools because of clay subsoil.

A small communal open space is provided for each scheme and community centres may be added later. Tree planting and maintenance of existing hedges will preserve the rural character of the schemes.

Above, type K and type DA (see p. 500) houses at Caversham. Left, a general view of the Rugby scheme.

general view of the Rugby scheme.

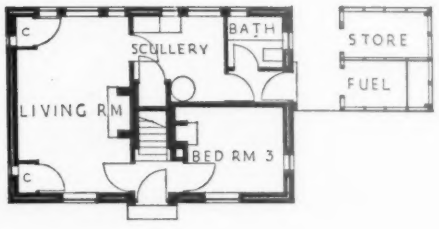
D E S I G N E D B Y A . G .
S H E P P A R D F I D L E R

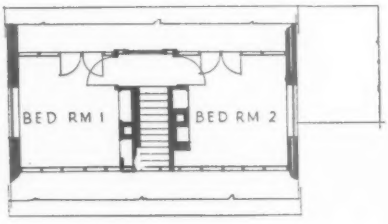


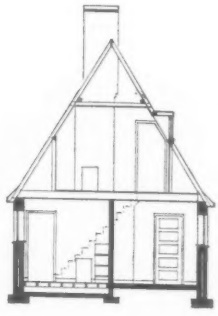
MATERIALS—*11-in. cavity walls with joisted floors and roofs. Variety was obtained by using 7 in. by 1 in. striplap weatherboarding to some gables ; by lime-washing ; by varying facing bricks and tiles, and by variety in paintwork.*

Above is a type K house on the Rugby scheme. Right, the Rugby Estate layout plan.

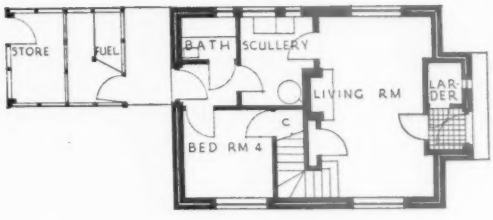
COTTAGE HOMES, LAND SETTLEMENT ASSOCIATION:

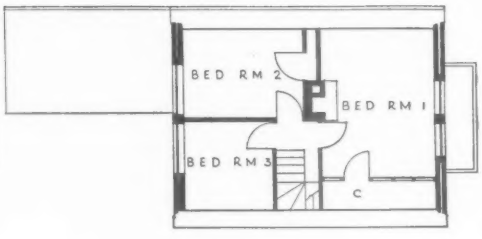


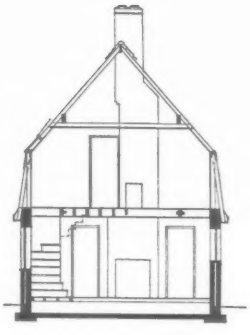




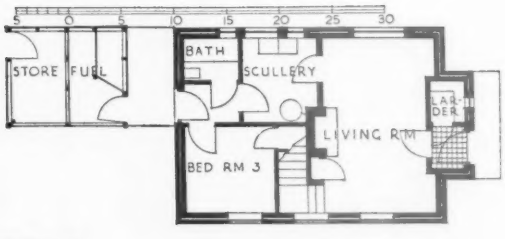
TYPE DUN GROUND FLOOR FIRST FLOOR SECTION

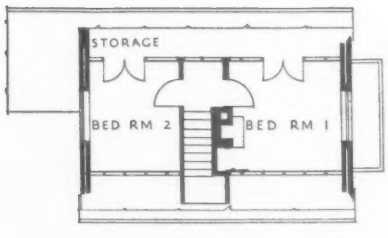


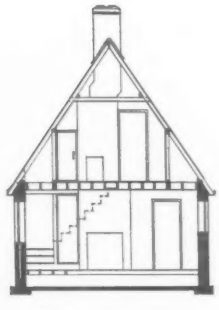




TYPE DA GROUND FLOOR FIRST FLOOR SECTION







TYPE K GROUND FLOOR FIRST FLOOR SECTION

PLAN—*Houses had to be built at a very low cost, so that the simplest possible plan shape was used with bedrooms in the roof. Three general types are used, though about one house in six is of four-bedroom type. All bedrooms conform to Housing Act sizes. Small range of types was employed to avoid discrimination between tenants and cheapen cost. All available cupboard space has been prepared for use.*

External sheds have been provided for fuel, cycles, and storage, and have been linked up with the buildings. Each holding is equipped with chicken-house and Dutch light structure.

DESIGNED BY A. G. SHEPPARD FIDLER

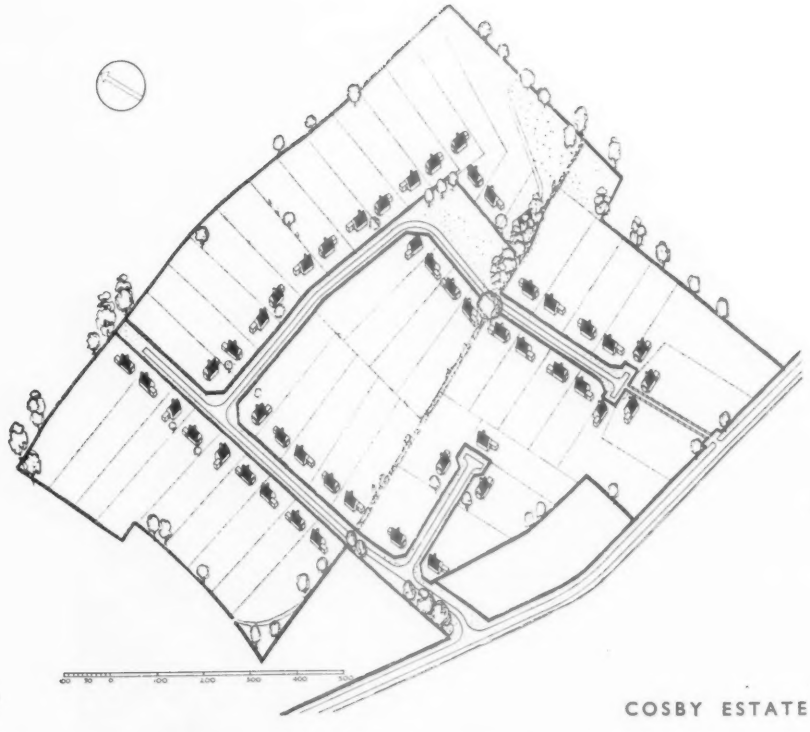
INTERNAL FINISH — *All internal walls are plastered and distempered. Each house has open-fire kitchen range, back boiler and hot water supply to sink and bath.*

COST—*Average cost per cube foot, including storage shed, was 1s.*

Above and below, the Cosby Estate.

COTTAGE HOMES, LAND SETTLEMENT ASSOCIATION:

Left, houses on the Cosby Estate, showing two of the types in use.

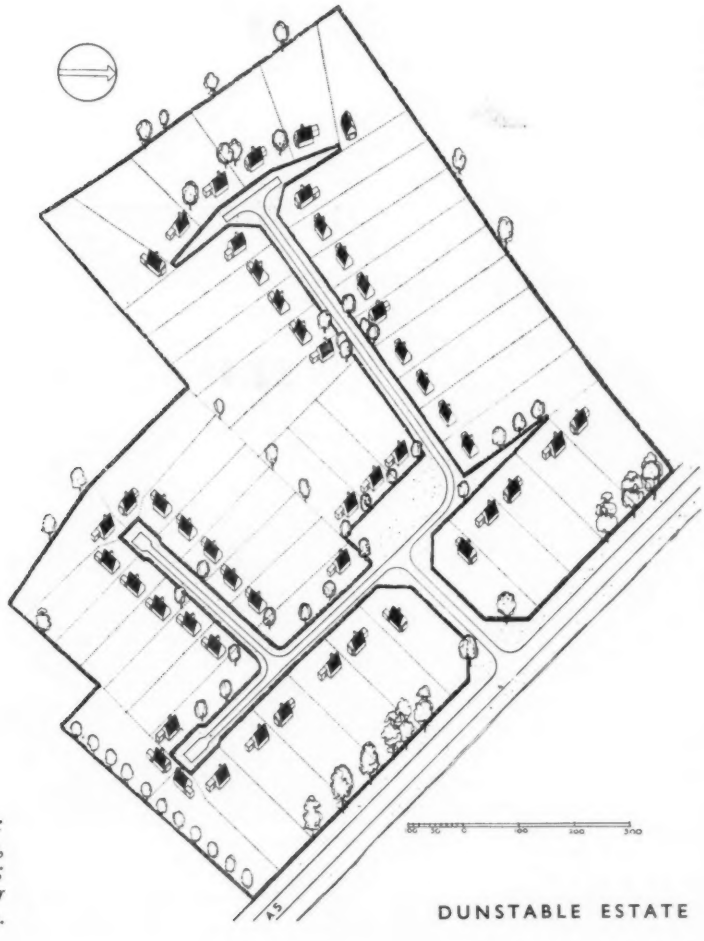


COSBY ESTATE

Above, the layout plan of the Cosby Estate. Comprising 48 homesteads, Cosby is laid out in a typically informal manner, advantage being taken of the regular site to obtain as much isolation as possible for each building. The two house-types, of mansard roof and brick facing, and colour-washed stucco with weather-boarded gables, are largely alternated to give variety in elevational treatment.

DESIGNED BY A. G. SHEPPARD FIDLER

Above, two views of the E type house on the Dunstable Estate, plans of which are reproduced on page 500. The type is characterized by an all-brick finish to window surrounds, doors and gable ends, and moderately high-pitched tile roof with a single flat-headed dormer. The fuel and store outhouse is partly weatherboarded. Weatherboarding throughout the estates has been treated with a stain preservative. Other house-types than the E type have been used on the Dunstable Estate; an example of the mansard variety being just visible in the left-hand illustration.



DUNSTABLE ESTATE

Right, layout plan of the Dunstable Estate.

The general contractors for the four schemes were: Caversham, Messrs. W. Stirland; Rugby, Messrs. W. Hill; Cosby, Messrs. W. Hill; Dunstable, Messrs. Craven (Builders), Ltd. For list of sub-contractors and suppliers, see page 510.

EYE INFIRMARY EXTENSIONS, WOLVERHAMPTON

PROBLEM—*To provide more accommodation and to reorganize the layout of the existing hospital. The former Outpatients' Department was demolished and a new one built joining up to, and using a small portion of, the old. Wards, squint training department and pathological laboratory were built above so that all wards, save children's, were on same level as operating theatre.*

SITE—*Small area of site, further decreased by the building lines, made it necessary to place wards over the O.P.D.; and therefore a block form suitable for both had to be found. The triangular plot before the east front may eventually be thrown open, making this front an important feature when seen from the adjoining open space of Chapel Ash.*

Above, the new building from the north-east; and an aerial photograph of the whole hospital group.

DESIGNED BY LAVENDER AND TWENTYMAN

PLAN—*It was necessary to keep to the floor levels of the old building, and this gave a height of 19 ft. 4 ins. from ground to first floor. This was used to provide, on a mezzanine floor, flats for house surgeon and porter. A heat- and glare-insulating glass made consulting rooms possible along the south front.*

CONSTRUCTION—*Higher portion of building is steel-framed with 16-in. hollow and 14-in. solid brick walls. Lower portion, 11-in. hollow walls. R.C. hollow block floors and roofs—the latter finished with asphalt on cork. Partitions are of hollow block.*

ELEVATIONS—*Greyish red hand-made bricks. Hollington stone plinth, copings and window surrounds. Metal windows are zinc-sprayed. Staircase windows are glass-concrete.*

INTERNAL FINISHES—*Floors : green rubber generally ; brown tiles in lavatories, etc. Walls : painted on plaster ; buff terrazzo in O.P.D. ; tiles in bathrooms. Ceilings : acoustic plaster in waiting hall, consulting room and board room ; elsewhere, false ceilings on metal lathing. Door frames and skirtings on upper floors, metal trim. Doors : solid, laminated, veneered mahogany ; in waiting hall, anodized aluminium. Furniture and joinery in board room : Australian walnut. Lettering : metal, cellulosed blue-green.*

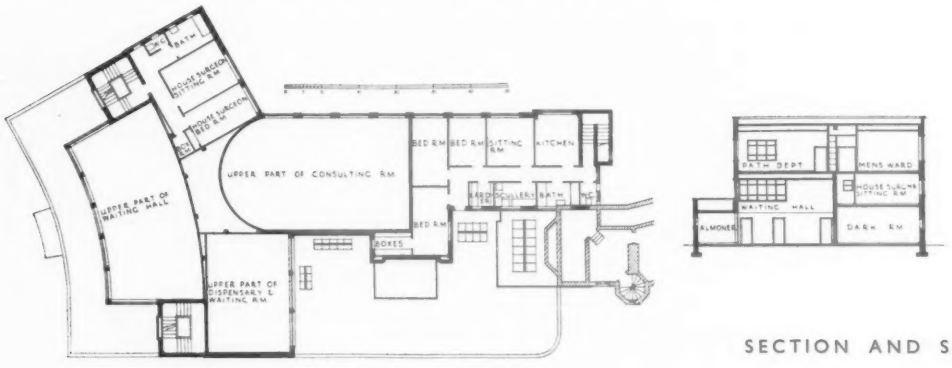
SERVICES—*Ceiling panels in new section. New boilers, automatically stoked. Radio : Diffusion service with built-in loudspeakers in wards and waiting hall. Built-in electric fires in all wards and offices.*

COST—*Approximately £27,500, excluding site works and repairs to old building. Price per cube foot, 1s. 6½d.*

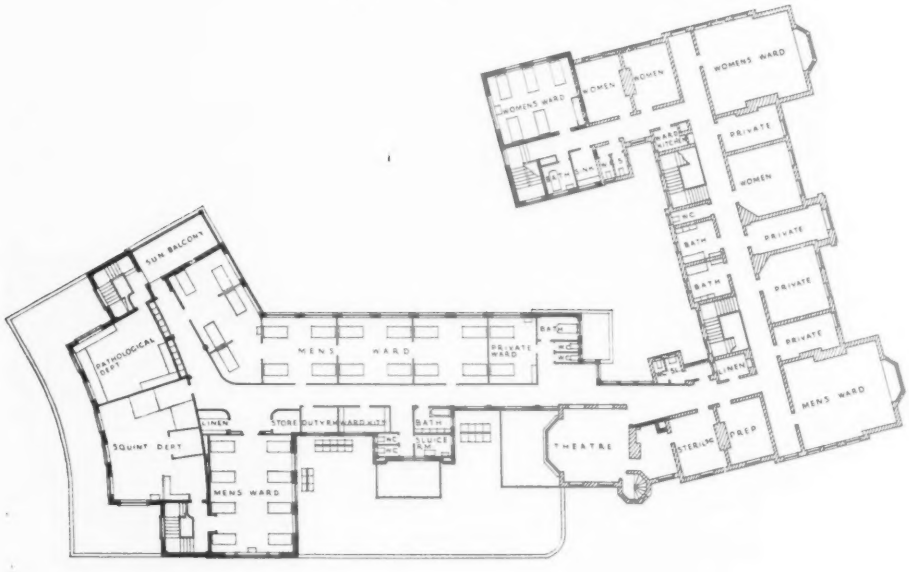
Above, the entrance front ; below, the south front. Plans are reproduced overleaf.

The general contractors were F. and E. V. Linford, Ltd. For list of sub-contractors see page 510.

EYE INFIRMARY EXTENSIONS, WOLVERHAMPTON



SECTION AND SECOND FLOOR PLAN



FIRST FLOOR PLAN

GROUND FLOOR PLAN

DESIGNED BY LAVENDER AND TWENTYMAN

IN THAT CONTINGENCY

[NOTES FROM THE BUILDING RESEARCH STATION (Crown Copyright Reserved.)]

THE practice of rendering the external surfaces of buildings is a very old one, probably as old as the art of building. No records remain of the methods used in the earliest times; but it is likely that the first material used for the purpose was mud, and the mud-and-wattle wall is still used in certain parts of the world today. The Romans used methods and materials more akin to those used at the present time and, in the writings of Vitruvius, have left records of their technique. It was their practice, in Italy and also in their colonies, to render masonry and brickwork, using two sanded undercoats and a finishing coat of lime and marble dust worked to a very smooth finish.

Despite, however, the long experience in rendering, it must be admitted that much of the work seen today is far from satisfactory and there are few architects who, in specifying a rendered finish, feel confident that the results will be initially what they desire and that the work will continue to exhibit a good appearance.

Inquiries received at the Building Research Station include a good proportion relating to rendered work, clearly indicating the need for further investigation of the subject and the dissemination of information. Troubles with rendered finishes are experienced with all classes of work, but cannot be said to be relatively more frequent with cheap work carried out speculatively. Indeed, often it is the larger and more costly buildings, where a special finish is desired, that give the most difficulty.

The study of rendered finishes cannot be pursued very far in the laboratory, and any useful scheme of research must make provision for numerous test panels of adequate area, which can be watched for a period of years. Such work is therefore costly and cannot yield conclusive results till after the lapse of many years. But much can be learned by the study of existing examples of rendered work and by a comparison of the results obtained over a considerable period with various techniques. In 1937 this study was extended by a survey of the methods and materials used in several Continental countries — Germany, Austria, Czechoslovakia and Switzerland. The practice was found to be radically different from our own and a comparison of the various methods and the results obtained with them provides explanations of the troubles often experienced and points the way in which improvements may be effected. The differences between Continental and British methods are conveniently discussed under the four headings :—

(1) Architectural Design and Construction.
(2) Materials.
(3) Application.
(4) Texture.

Architectural Design and Construction

Many of the defects that arise with renderings can be traced to the habit of regarding it as merely a surface coating to cover up any form of masonry or brickwork and any type of construction. Actually the intention to render must be borne in mind from the outset and suitable detailing to suit this method of finishing must be considered at the start. Conversely, the type of finish used must be adjusted to the building and the situation, avoiding the most absorptive finishes in districts of high atmospheric pollution, and introducing hard finishes in situations liable to impacts or abrasion.

The need for attention to these points is perhaps best illustrated by a comparison of the behaviour of rendered finishes in two classes of building—the small house with a pitched roof, and the garage or filling station with a parapet to the front elevation. In the former case almost all types of rendering are satisfactory from the point of view of protection if the site is not too exposed, despite the fact that the rendering is applied to common brickwork, often containing soluble salts able to cause disastrous results in other kinds of buildings. The surface of such a rendering may become shabby after a few years and hair cracking is frequent; but in spite of the cracking there is rarely any penetration of water and, if the irregular discoloration of the surface is objected to, the work can be renovated with distemper. The protection of the wall face by roof projection at the eaves and verges plays a large part in ensuring the good behaviour of the finish. The important feature in this class of work is that penetration of water *behind* the rendering is prevented.

The use of similar materials in the building where the walls are not protected by roof overhang is often followed by serious consequences. Some degree of cracking must be expected whatever plastering materials are used. This may be unimportant on vertical work, but on horizontal surfaces provides a path by which water readily enters. Even when the best bricks are used, staining and discoloration must be expected, but when common bricks containing soluble salts are used gross failure occurs. There is first a lifting of the brickwork, producing a series of roughly horizontal cracks on the face of the parapet. Moisture is then more rapidly absorbed, the back of the rendering is swollen by the action of the salts and finally the plaster falls from the brickwork. Meanwhile dampness penetrates further and further down the wall and the action is progressive. Examples of this sort of trouble are to be seen abundantly in most districts, typically on the fronts of cinemas and garages, and also on houses, offices and other buildings having a flat roof surrounded by a parapet. The root cause of the defects which arise is the entrance of water through horizontal surfaces and projections. No rendering material can be expected to function as a horizontal damp-proof course, and for successful rendered work all horizontal surfaces must be protected either by a coping, or a flashing of lead, zinc or copper, or some equivalent method. The use of flashings even for the smallest projections seems to be second nature with Continental architects and builders, and this is undoubtedly one of the reasons for the greater success with rendered buildings in the " modern " style.

Architectural design affects the behaviour of a rendering equally from the point of view of the protection against moisture penetration and also as regards the maintenance of a good appearance. Where a projection or a coping is rendered over and not provided with a drip and throating, the moisture falling on the surface runs down in streams over the surface below, producing a series of dirty streaks which are a serious disfigurement. This effect develops in towns in as little as a month or so. The defect can be avoided by a slight projection of the flashing to throw the water clear of the wall. Cills should be turned up a little at the ends, otherwise water runs off in a stream at the ends and produces a disfiguring streak there.

Materials

The material almost invariably used for external plastering in this country is cement and sand, mixed in the proportions 1 : 2½ or 1 : 3. For undercoats a local sand is generally used, but if a special finish—white or coloured—is desired, a fine white plastering sand may be used with white or coloured cement. Alternatively a proprietary ready-mixed stucco is used consisting of Portland cement and a specially selected aggregate. The choice of materials is therefore restricted.

On the Continent the mixes used vary more widely, but they have this in common—that cement is practically never used as the sole binding material, and it is usual to include a proportion of lime in the mix. The actual amount varies in the different districts and according to the type of work. The reasons given for the use of lime are that it makes the mix easier to apply and reduces cracking. Certainly Continental renderings are rarely disfigured by cracks, though it is not yet possible to say whether this is chiefly due to the mix used, the method of application or the texture. There is evidently a good case for experiments with cement and lime mixtures in this country, and for the benefit of those who may like to make some trials the following suggestions are offered : The ratio of lime (measured as putty or dry hydrate) to cement may vary between 4 : 1 and 2 : 1. The mixes with the highest cement content are naturally the harder and stronger. The lower ratio of lime should be adopted until experience has been gained. The ratio of cement plus lime to sand should be 1 : 3.

In the above mixes, as also in the plain cement and sand mix, the quality of the sand used is important. It is absurd to specify carefully the cementing material in the mix and neglect that constituent which constitutes three-quarters of the substance of the finished work and has at least an equally important influence on its behaviour. Unfortunately it is quite out of the question at present to specify sands at all rigidly since, in most classes of work, local sands must be used. Preference should be given to sands containing particles ranging in size from coarse to fine, and as free as possible from loam. The presence of clay and loam and the use of fine uniform sands undoubtedly predispose to cracking.

The objection is often raised to mixes containing a good proportion of lime that they will be both weak and absorptive. Certainly they are softer than the plain cement mixes, but not so soft as might be supposed. The hardening process is slower, but long-continued. Nevertheless it is advisable, on plinths subject to much abrasion, to use a harder surfacing. The objection on the grounds of porosity seems to be ill-founded. Penetration of rain through renderings is the result of bad design or of cracks in the finish : indeed it is the dense, smooth rendering which is cracked which is particularly liable to cause dampness of walls, for water which is absorbed is prevented from evaporating and so accumulates. Rendered finishes in highly absorptive mixes prove to be quite rainproof; in fact, the experience with some open-textured renderings rather suggests that any rendering will be rainproof provided it is not cracked. Doubtless there are limits to the porosity that may be permitted, but they are very wide.

Application

The method of applying mortar to brickwork appears to have a bearing on the weatherproofness and appearance of rendered work. On the Continent, application by the method common in this country—" laying-on " with a trowel—is almost unknown. Each coat in a rendered finish is applied by throwing-on. The mortar is for this purpose mixed to a rather wetter consistence than we are accustomed to and then is flung on with a bull-nose trowel or similar tool. Undercoats are roughly levelled with a straight-edge—which leaves a good enough key for the next coat—or smoothed with a float or hand-board and then scored. Finishing coats are dealt with in the same way, but the surface treatment depends upon the texture desired.

In view of the advantages claimed, plasterers would do well to experiment with this method of application. Cracking is said to be reduced and the texture is made more uniform. There is nothing really novel in the technique—it is merely an extension of the roughcasting or " harling " technique to *all* the coats of a finish. It is not perhaps realized that in the rough-cast finish all the elements of Continental practice are present, for (1) the mix is thrown on, not laid-on (from necessity, of course), (2) the texture is very rough and (3) a good proportion of lime is commonly used. It is significant that, of all the external plaster finishes, roughcast behaves better than any, from the point of view of weatherproofness. The roughcast surface is not suitable for all classes of work and is not fashionable for buildings of the larger kind today, but there seems no reason why the good protective properties of roughcast should not be secured in other and more acceptable surface textures.

Texture

A few years ago the recommendation that rendered work should be finished with a rough texture might have raised violent objections, but present practice inclines more and more to the "bolder" type of finish. The scraped texture in particular is gaining ground rapidly. There is much longer experience with scraped finishes on the Continent than in this country. For a generation it has been almost the standard treatment for the best class of work and its value is demonstrated beyond cavil. There is still a certain prejudice against rough textures, because of the belief that they become dirty more quickly than smooth, but a little thought will show that objections on this score are not well founded. In the past the attempt has been made to produce a rendering which would keep clean by working it to a smooth surface in the hope that it would afford no lodgment for dirt and be washed clean by the normal process of weathering. Actually, when rain falls on a smooth non-absorptive surface it does not distribute itself uniformly, but the water runs down in streaks. The result is *irregular* discoloration and the building soon looks shabby. Rough surfaces, on the other hand, break up and distribute the water films, and so, although the total amount of deposited impurity may be greater, the disfigurement is less. Scraped finishes in Continental cities are found to preserve a uniform appearance for long periods, and they may be expected to behave equally well in this country.

It would be a mistake to suppose that any stucco or plastered finish provides a solution to the old problem of producing a surface which will not discolour in districts where the atmospheric pollution is high. In dirty towns even the smoothest surface must be washed or painted at intervals if a bright, clean appearance is to be preserved. Glass presents the smoothest and least absorptive surface it is possible to produce, but windows which are not cleaned regularly may in time become so dirty that chemical methods of cleaning are necessary. If a facing is required that will preserve a good appearance without regular maintenance, then all that can be done is to form a surface which will weather uniformly and not too rapidly and to avoid any finish that will discolour irregularly and any architectural feature that promotes streakiness.

The scraped finish for renderings is very simple to work and by no means expensive. Special tools can be made for the purpose, but scraping with a straightedge, a hacksaw blade or the edge of a steel trowel produces a surface far superior to the wood float finish in its weathering properties. Better effects are obtained by using either a wood frame in which several lengths of large-toothed hacksaw blade are fixed, or with a nail-studded board or a strip of expanded metal fixed round a float. Some experience is necessary to choose the right moment for scraping, and the finishing coat must be allowed to dry and harden a little before scraping. The period required may be as little as an hour in warm, dry weather or as much as a day in cold, humid conditions. The finish must have lost its plasticity entirely, so that the scrapings fall away as a moist dust.

There are many other methods of producing a textured finish, and an account of these and of the other matters briefly discussed in this Note is given in a report just published entitled "External Rendered Finishes: A Survey of Continental Practice," by F. L. Brady and L. F. Denaro. This may be obtained from H.M. Stationery Office, price 1s. net, or through any bookseller. The report describes the materials and methods used in producing a variety of textural finishes and a specification is given for a scraped-finish rendering for the convenience of those who may like to make some trials. The problem of the more brightly-coloured renderings is not dealt with. Some of the principles described above can doubtless be applied with advantage in such work, but for the present, at any rate, it is perhaps safer to depend upon the proprietary mixtures now available, which should be applied strictly in accordance with the manufacturer's recommendations, rather than to attempt to make up the necessary mixtures of cementing material, pigment and aggregate on the job. The preparation of such mixes involves no fundamental difficulty, but, owing to the stringent requirements as regards uniformity of colour in successive mixes, it is considered that, until experience has been gained, factory-mixed materials are likely to be more successful than those mixed on the site.

REVIEW OF THE EXHIBITS

THE HOUSING CENTRE

Organized by the Housing Centre, this exhibit (Nos. 417–424 Gal.) endeavours to show that the countryside is not only a playground for the town-dweller, but has a life of its own as the home of Britain's second largest industry. It is presented in the following sequence:—The Problem: Since the war over 200,000 agricultural workers have left the land; rather than live under apparently hopeless conditions they have drifted to the towns. The Slum Problem: To date, 61,106 cottages in England and Wales have been scheduled for clearance. Of these, 19,000 have been dealt with.

The Overcrowding Problem: Under the 1935 survey, 41,928 families were living in overcrowded conditions. Housing Policy: About 18,000 houses have been reconditioned under the 1926 Reconditioning Acts. Recent legislation has provided a subsidy for new buildings, as a means of erecting cottages with rents within the means of the agricultural worker.

The New Cottage: Contrasting with the slum at the Exhibition, is the new cottage. The design can be taken as an example of reasonably minimum standards, considering present financial limitations. Village Planning: Cottages should be used to bring renewed life to the villages. New cottages should be planned to form a natural extension of the existing villages.

THE MARS GROUP

The exhibit sponsored by the MARS Group. (Nos. 411–416 Gal.) commences with a large photograph of Oxford Street, symbolising the confusion of contemporary planning. The second screen emphasizes what may be called the slogan of the recent MARS Exhibition—"Commoditie, Firmenes and Delight." The third section deals with adaptation to purpose; what are the purposes for which we build at all?

The screens which follow show some of the important changes in methods and materials which provide opportunities for the architect to-day.

FILMS AT THE BUILDING TRADES EXHIBITION

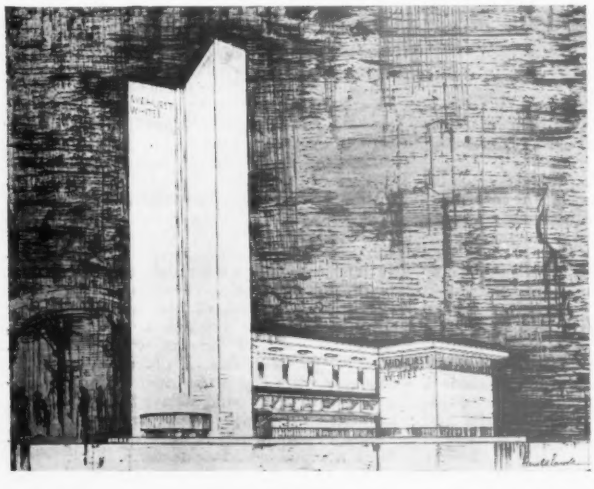
Following is a list of the films which are included in the programme which is being shown in the Cinema in the gallery at Olympia. The performance is continuous and admission free. "Kensal House" (The Gas Light and Coke Company); "The Film of Paint" (Lead Industries Development Council); "Queering the Pitch" (The Limmer and Trinidad Lake Asphalt Company, Ltd.); "Big Timber" (Canadian Government Exhibitions Commission); "The Making of Bricks" (London Brick Company, Ltd.); "Zinc Roofing" (Zinc Development Association, Ltd.). The programme has been arranged by Building Industries Services, Ltd.

ANSELM, ODLING AND SONS, LTD.

Messrs. Anselm, Odling and Sons, Ltd., show, on stand No. 158 G, the application of marble in its varying colours and finish, suitable for wall linings, pavements, staircases, pedestals, chimneypieces, hearths, radiator tops and casings, etc.

ASSOCIATED CLAY INDUSTRIES, LTD.

The following exhibits are displayed on



Left, the stand (No. D 67) of Midhurst Whites, Ltd., Architects, Theo. H. Birks, in association with Gerald Lacoste. Above, the stand (No. Q 299) of Ruberoid Co., Ltd.

the stand (No. 53 D) of the Associated Clay Industries, Ltd. : Bast and Stonite fireplaces ; sanitary ware, bathrooms, etc. They are the products of Messrs. W. R. Pickup, Ltd., the Stonite Co., Ltd., and Messrs. Robert Brown and Son, Ltd.

BOSS AND SONS, LTD.

Messrs. C. Boss and Sons, Ltd., plate sheet and glass merchants, are showing, on stand No. 241 L, a comprehensive range of their products.

CLARKHILLS, LTD.

This firm's Minor de Luxe multi-point water heater is featured on stand No. 273 O. It has a white porcelain body with chromium top and base ; is fitted with the Clarkhill thermostatic control as standard ; and has an output of 3 gallons per minute, raised 40 deg. Fahr. with a gas consumption of 3 ft. per minute of 500 B.T.U. The heater is suitable for the small house, flat or bungalow. Also on view is the Clarkhill Minor multi-point gas water heater.

COZY STOVE CO., LTD.

The Cozy Stove Co., Ltd., are showing, on stand No. 248 M, a selection of their slow combustion stoves. A number of settings is also on view.

DOVER ENGINEERING WORKS, LTD.

The Dover Engineering Co., Ltd., are showing, on stand Nos. 128, 129 F, their Elkinton covers and frames suitable for all purposes. These are supplied in any size from 6 ins. by 6 ins. upwards, in ten strengths from foot traffic to the heaviest, fastest traffic.

DOWNING & CO., LTD.

The exhibits on this firm's stand (No. 245 L) include : clay roofing tiles, fittings and floor quarries of the Acme brand, Acme and Acme/Robur plain machine-made tiles, Acme/Century hand- and machine-made tiles, Acme/Sandstorm machine-made sandfaced tiles, etc.

DUROLIFE COMPOUNDS, LTD.

The exhibit of Messrs. Durolife Compounds, Ltd., on stand No. 91 E, comprises specimens of natural rock asphalt products on various materials, together with photographs of actual work in operation and completed.

DRYCO-RENSEC, LTD.

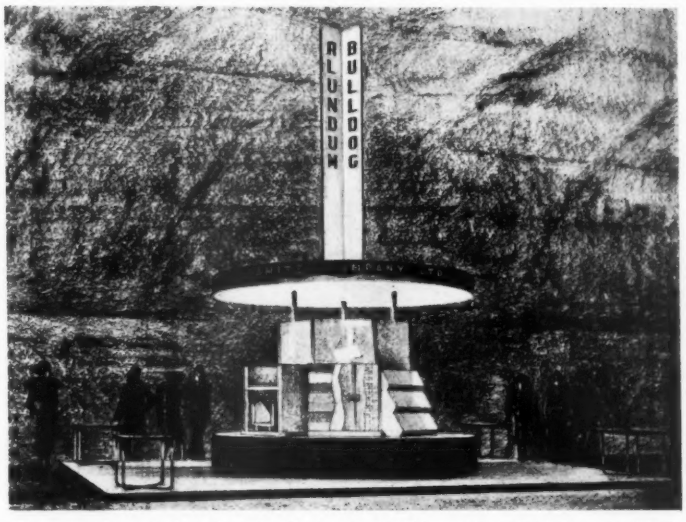
The demonstrations on the stand (No. 257 M) of Messrs. Dryco-Rensec, Ltd., include : treated and untreated walls, under running water on brickwork, lime wash, cement wash, coloured wash and rendering.

ECLIPSE RAIL TRACK LADDER CO., LTD.

This firm are showing, on stand No. 285 P, full-size models of their disappearing loft ladders. Specially featured is the Phanta loft ladder. There are also on view the Eclipse rail track ladders and Service ladders.

F. H. EVANS

Patent washerless valves for hot and cold water in all designs, including surgeon's fittings, bath sets, stopcocks, etc., are exhibited by Messrs. F. H. Evans on stand No. 5 B.



A perspective of the Adamite Co.'s stand (Nos. 165, 166 H). Architect, Harold Davies.

EVER-FLOAT CO., LTD.

The Ever-Float which is exhibited by Messrs. Ever-Float Co., Ltd., on stand No. 441 Gal., prevents flushing cisterns, storage tanks, etc., overflowing and is suitable for every type of cistern.

HADFIELDS (MERTON), LTD.

Messrs. Hadfields (Merton), Ltd.'s stand (No. 345 V) occupies a corner site. The back section contains a number of sliding display panels ; and a semi-circular pillar supporting the end of the stand contains a display of the firm's varnishes in a series of illuminated tubes.

IDEAL BOILERS AND RADIATORS, LTD.

A selection of Ideal boilers for central heating and hot water supply ; also various examples of Ideal radiators, Ideal Rayrad and Ideal towel rails are shown by Messrs. Ideal Boilers and Radiators, Ltd., on stand No. 300 Q. Displayed for the first time is the No. 1-XL Ideal domestic boiler for hot water supply. Also on view are gas domestic boilers and the No. 6R Ideal sectional boiler.

GEORGE W. KING, LTD.

This firm's exhibits include : overhead tubular tracks and fittings for doors up to 3 tons in weight ; Out-of-the-Way and Around-the-Corner sliding doors for warehouses, garages, etc. ; silent sliding gear for domestic and interior doors, etc. The stand No. is 405 Gal.

LAWRENCE AND SONS (BRACKNELL), LTD.

A few of the ranges and varieties of bricks, tiles, etc., made by Messrs. Thomas Lawrence and Sons (Bracknell), Ltd., are being shown on stand No. 154 G.

W. LUSTY AND SONS, LTD.

A special feature of this firm's display (stand No. 242 L) is a series of kitchens furnished with alternative styles of Maidsaver unit fitments. These range from inexpensive whitewood fitments to highly finished enamelled fitments complete with storage equipment.

MAJOR, LTD.

The exhibits of Messrs. Major, Ltd. (stand No. 105 E) include their patent interlocking Double Roman pantiles, No. 6 Breakjoint Double Roman tiles, No. 6 Straightjoint Double Roman tiles, No. 5 Single Roman tiles, etc.

MASONITE, LTD.

Messrs. Masonite, Ltd.'s stand (No. 162 H) displays the manifold types of Masonite grainless wood boards and their various uses. Both the practical and decorative aspects of Masonite are shown ; also the Masonite nails and jointing tape.

M. A. MORRIS, LTD.

The exhibit (stand No. 332 T) of Messrs. M. A. Morris, Ltd., shows some of the popular kinds of hardwoods used for constructional and joinery purposes, and the forms in which they are available as material to the building trade.

NATIONAL ASSOCIATION OF MASTER ASPHALTERS

On the above Association's stand (No. 393 Gal.) information may be obtained regarding mastic asphalt as applied to buildings.

NATIONAL ENAMELS, LTD.

Porcelain enamelled equipment for bathroom and kitchen is exhibited by Messrs. National Enamels, Ltd., on stand No. 21 B. The exhibits include porcelain enamelled bath panels, pantry shelves, splash plates tiling, drainage trays and utility cabinets.

NATIONAL GAS WATER HEATER CO., LTD.

A comprehensive range of water heating equipment by gas is being shown by the National Gas Water Heater Co., Ltd., on stand No. 42 C. The firm are exhibiting for the first time their new single-point bath heater, which is designed to eliminate maintenance troubles and to reduce upkeep costs to a negligible figure.

NEUCHATEL ASPHALT CO., LTD.

This firm are showing, on stand No. 178 H,

samples of asphalt rock obtained from the Val de Travers mines. On the floor of the stand is laid Neuterrazzo coloured asphalt flooring, which can be supplied in various colours and designs.

PALORIT PAINTS, LTD.

Messrs. Palorit Paints, Ltd., are exhibiting (stand No. 439 Gal.) materials for the special treatment of: (1) wall surfaces (Tyloglaze); (2) fire-resisting, Submarine and heat-resisting paints; (3) special compounds for application to exterior and interior walls for protection, and combating condensation.

PEERLESS KITCHEN CABINETS, LTD.

On this firm's stand (No. 323 S) is a range of built-in furniture modelled on the units introduced by the firm several years ago.

PEGLERS, LTD.

The Elder-Prestex flushometer and Prestex series of specialities are shown by Messrs. Peglers, Ltd., on stand No. 132 F.

PEGSON, LTD.

The above firm are showing, on stand No. 179 H, their concrete vibrators, which are built in a number of different types and sizes for vibrating concrete. One type is built for vibrating concrete beds, whilst the second type is constructed for vibrating concrete which is shattered. Also on view is the Mellor-Bromley filtering and ventilating unit for air raid precautions.

PLANTET GYPSUM PLASTER BOARD CO., LTD.

Several panels of Planet plasterboard are exhibited by this firm on stand No. 92 E. These panels demonstrate the various decorative effects which can be obtained in conjunction with Plant Hardwall plaster and various paint and distemper finishes.

REDHILL TILE CO., LTD.

The stand (No. 149 G) of the Redhill Brick Co., Ltd., is in the form of an open pavilion. The roof is covered with antique brown interlocking tiles, and the walls are finished in cream colour. Panels on the walls show some of the firm's stock standard colours.

SAL-FERRICITE AND TRADING CO., LTD.

On stand No. 184 J this firm are demonstrating the use of their waterproofing liquid to seal a jet of water bursting out of a concrete wall with a pressure of over 80 lb. to the square inch.

SEALOCRETE PRODUCTS, LTD.

Photographs of work incorporating this firm's different products for the dust-proofing, oilproofing, greaseproofing, water-proofing, case-hardening and rapid-hardening of concrete and ceiling bursts under pressure are on view on stand No. 382 Gal. Also on exhibition are samples of their products and sample slabs of concrete treated with their products.

SHAPLAND AND PETTER, LTD.

Raleigh flush doors, in various veneered finishes, are on view on the stand (No. 122 F) of Messrs. Shapland and Petter, Ltd. Also on view are samples of flush veneered work in Empire and other windows.

SAMUEL SMITH AND SONS, LTD.

Foresight grates are the principal feature of the exhibit of Messrs. Samuel Smith and Sons, Ltd., on stand No. 189 J. All types and models are on view from the small oven-over-fire one to the de Luxe model suitable for cooking and hot water needs of a large family.

STAINES KITCHEN EQUIPMENT CO., LTD.

Exhibits on this firm's stand (No. 230 L) include: new Junior Brush type crockery-washing machines; patent teak greaseproof sinks; stainless steel sink and cabinet units; and general kitchen joinery work.

STEEL RADIATORS, LTD.

Steel radiators for central heating installations are displayed by Messrs. Steel Radiators, Ltd., on stand No. 269 N.

STOCK BRICK MANUFACTURERS' ASSOCIATION

The stand (No. 102 E) of this Association is in the shape of an arch symbolizing the main architectural principle of brick construction. The designer of the stand is Mr. Bertram Carter.

SUSSEX BRICK CO., LTD.

The stand (No. 157 G) of the Sussex Brick Co., Ltd., designed by Mr. Verner O. Rees, has a large show window displaying about 30 different varieties of bricks, several of them being facing bricks of new tones, both deep and pastel.

STEEL & CO., LTD.

Colours for cement, concrete, asbestos, etc., are shown by this firm on stand No. 137 G. Specially featured is a small stack of multi-coloured bricks which have been treated by the I.G. Kiln Colour process.

THOMAS AND BISHOP, LTD.

Exhibits on this firm's stand (No. 37 C) include: Cling-Surface belt treatment for all belts and ropes to enable them to be run easy or slack under full load; Flexo belt treatment for all types of belts; Flexo tinning compound, etc.

TRIPLEX FOUNDRY, LTD.

Messrs. Triplex Foundry, Ltd., have two stands. On view on stand No. 251 M is their new 38 Triplex combination grate, which is being shown for the first time. The Triplex 22 cooker, a new product since the last Exhibition, is being shown on stand No. 13 B.

T. S. W., LTD.

Mortone water-repellent renderings are being exhibited by Messrs. T. S. W., Ltd., on stand No. 368 Gal. It is a factory-made mixture in white and colours for internal and external use. Also on view is the Hafta adhesive for preventing tiles becoming loose.

CHARLES TURNER AND SON, LTD.

Glynto enamel, Charterlac new process enamel and varnish, Charter aluminium wood primer, Charter flat oil paint, etc., are some of the exhibits on the stand (No. 215 K) of Messrs. Charles Turner and Son, Ltd.

UTILITIES (LONDON), LTD.

Air conditioning Freon compressor units from one to twenty tons refrigeration capacity, air conditioning units of suspended type, remote type for ducted systems, and floor cabinet units are among the exhibits on this firm's stand (No. 271 O).

VITREFLEX, LTD.

A comprehensive range of this firm's products are on view on stand No. 305 Q. Exhibits include: Vitreflex glazed iron rainwater, soil and vent goods, ornamental rain water heads, corrugated and plain sheets.

YORKSHIRE COPPER WORKS, LTD.

Demonstrations of the advantages of water service and heating systems in Yorkshire tubes and Yorkshire fittings are being given by Messrs. Yorkshire Copper Works, Ltd., on stand No. 115 F.

H. YOUNG & CO., LTD.

Steel framework for buildings, bridgework, crane gantries, etc., is being exhibited by Messrs. H. Young & Co., Ltd., on stand No. 277 O.

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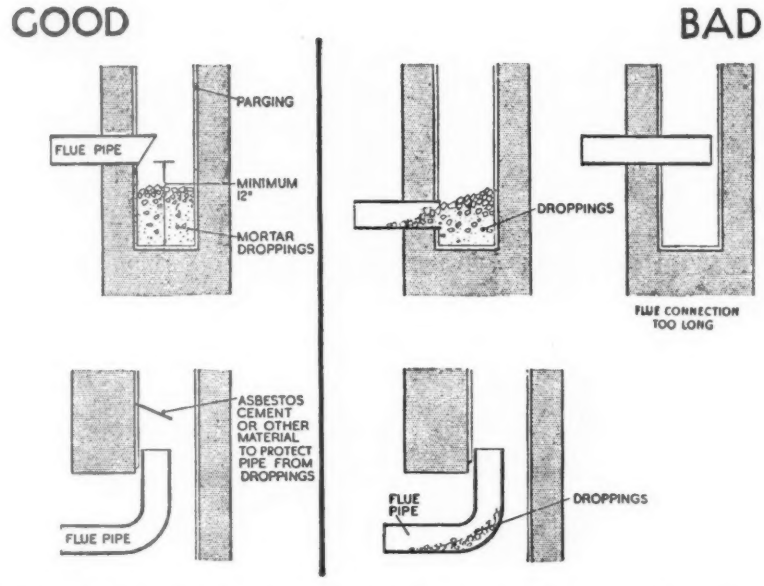
THE BUILDINGS ILLUSTRATED

COTTAGE HOMES, LAND SETTLEMENT ASSOCIATION (pages 474, 497-503). Architect: A. G. Sheppard Fidler. The general contractors were: Cosby Estate, W. Hill, Hinckley; Rugby Estate, W. Hill, Hinckley; Caversham Estate, W. Stirland, East Wittering; Dunstable Estate, Craven (Builders), Ltd., Leicester. Sub-contractors and suppliers included: London Brick Co., Marston Valley Brick Co., bricks; Adamite Co., Ltd., white finish to Caversham houses; Yorkshire Copper Works, Ltd., hot and cold water services; Eagle Range and Grate Co., Ltd., kitchen ranges; Williams and Williams, Ltd., steel casements; Kingsbury Collieries, Ltd., G. H. Downing Co. (1933), Ltd., Marley Tile (Holding) Co., Ltd., tiles.

EYE INFIRMARY EXTENSIONS, WOLVERHAMPTON (pages 504-506). Architects: Lavender and Twentyman. The general contractors were F. and E. V. Linford, Ltd., and sub-contractors and suppliers included: Himley Brick Co., Ltd., bricks; Banister, Walton & Co., Ltd., steelwork; B.R.C. Engineering Co., Ltd., reinforcement; J. A. King & Co., Ltd., Glas-crete windows; James Gibbons, Ltd., steel windows, door furniture; Joseph Sankey and Sons, Ltd., steel door frames; Venesta, Ltd., doors; W. Hayward and Sons, Ltd., railings and gates; May Acoustics, Ltd., acoustic plaster; Richard Crittall & Co., Ltd., heating, domestic hot water; Joshua Bigwood and Son (1930), Ltd., automatic stokers; Manley and Regulus, Ltd., plumbing; Twyfords, Ltd., sanitary fittings; Craven Dunnill & Co., Ltd., tiling; Stourbridge Glazed Brick Co., Ltd., glazed tile partitions; Trussed Concrete Steel Co., Ltd., suspended ceilings, Hy-Rib; Diespeker & Co., Ltd., terrazzo; India Rubber, Gutta Percha, and Telegraph Works, Ltd., rubber flooring; James Beattie, Ltd., lino; Atkin and Evans, electric lighting; Best and Lloyd, Ltd., Troughton and Young, Ltd., electric light fittings; Ferranti, Ltd., electric fires; Birmingham, Home and Office Telephone Company, Ltd., internal telephones; Gent & Co., electric clocks; Clement Clarke, Ltd., instruments; Eric Munday, metal lettering; Gordon Russell, Ltd., Williams Sheers, Ltd., curtains and furniture.



CONNECTIONS TO EXISTING BRICK FLUES

TRADE NOTES

[*By PHILIP SCHOLBERG*]

The Design of Gas Flues

WHAT makes the ordinary chimney smoke? There are various empirical rules which may be dutifully kept, but every now and then when the wind is in the wrong quarter the draught comes pouring down and if the fire is a coal one everything is covered with smuts, and the elevation is spoilt with all manner of cans and spouts in an attempt to cure the trouble. Keeping to the rules and hoping for the best generally produces a satisfactory flue, but there can be few architects who would be prepared to wager any considerable sum that an awkwardly running flue will not do all manner of things it should not. It is said that Street (Law Courts) used on every job to have a mock up built of every flue, and would go over them all with the foreman until they looked right by eye. And I gather that the result always worked, though nobody nowadays seems to know why. Perhaps even Street himself wasn't sure.

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With a coal fire the results of a smoky chimney are disastrous, for the most friendly client does not like having all the fabrics spoilt with soot. With gas fires it is less important. True, puffs of down draught will produce a wave of hot and rather evil smelling air, but the down draught is only intermittent and presumably does no particular harm. In spite of this, however, there is no reason why flues for gas appliances should not be properly designed, and the British Commercial Gas Association have just published a 38-page booklet which covers the more important aspects of the problem quite adequately. This is just the sort of job which the B.C.G.A. ought to do, for they are in a position to sift all the information available from different manufacturers of gas appliances, and to re-issue it in the simple and intelligible form they have evolved here. There is, as one would expect, a certain amount of propaganda for gas as a fuel, but the claims made are reasonable and anyway do not detract from the value of the suggestions made on such subjects as the proper position for wall outlets, terminals above flat roofs, connections to existing brick flues, and, of course, flue sizes. The section on flat roofs is very welcome, for it is a subject about which few architects are really happy, and although it still seems difficult to avoid terminals popping up above parapet level, when the sight line will be at an angle of at least 60 deg. to the ground, it is none the less useful to have recommendations which can be trusted to produce flues which will work as they should. Three pages of drawings and tabulated data give the essential dimensions and uses of all the standard types of flue blocks and terminals, not forgetting the winder, raking, corbel and offset blocks, and this section forms a very handy ready reference for anyone who wants to know what can be done and how.

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By and large this is a very useful production. In the space available it cannot attempt to be exhaustive, but it gives a good deal of information in a handy form, and is well worth keeping in some place where it can be easily found.—(*The British Commercial Gas Association, Gas Industry House, Grosvenor Place, London, S.W.1.*)

Cable Data

Henley's General Information booklet has just gone into a new edition and has been considerably enlarged, and includes, for instance, the current ratings for cables laid direct in the ground for voltages up to 30 KV, these being the ratings recently issued by the Electrical Research Association. Current ratings for cables installed in air or in ducts are still under consideration, but these figures will be included in subsequent editions. Further data includes various tables of current ratings for rubber insulated cables in accordance with the present I.E.E. regulations for the electrical equipment of buildings, and the application of the various formulæ and constants to determine cable sizes under the particular conditions existing in actual practice are concisely explained and illustrated with examples based on the various systems of supply. None of these calculations are normally made by architects, but for the simpler jobs it is useful to have some sort of guide which can be easily applied.—(*W. T. Henley's Telegraph Works Co., Ltd., Holborn Viaduct, London, E.C.1.*)

Expansion Joints for Concrete

The Celotex people have now started the manufacture of Flexcell cane fibre expansion joints, the fibres being felted into a strong resilient board and saturated with a waterproofing compound to give long life. The material gives a permanent resilient cushion capable of returning to its original thickness after repeated compressions, while the small air cells between the fibres absorb the compression without extrusion of the material. As a permanent joint filler for concrete roads this seems an admirable material, for the absence of extrusion means that there will be none of the usual bumps where the joints come, and this should also mean a saving in maintenance costs, as bumps sooner or later produce pot holes either side of them. For flat roofs and other exposed positions the firm markets a sealing material known as Sapolite. Both these materials are now being produced in quantity at the recently opened Celotex factory at Stonebridge Park.—(*Celotex, Ltd., North Circular Road, Stonebridge Park, London, N.W.10.*)

Manufacturer's Item

A brochure has been recently issued by Constructors, Ltd., of Tyburn Road, Erdington, Birmingham, dealing with the construction of local A.R.P. gas-mask stores. Examples of planning and equipment are given for stores ranging in capacity from the 4,000-5,000 mask store to one for 30,000 masks.

Copies of the loose supplement containing the labour rates for the principal towns and districts throughout the country can be obtained from the JOURNAL, price 2d. to cover postage.

PRICES

The complete series of prices consists of four sections, one section being published each week in the following order :—

1. Current Market Prices of Materials, Part I. (published last week)
2. Current Market Prices of Materials, Part II.
3. Current Prices for Measured Work, Part I.
4. A. — Current Prices for Measured Work, Part II.
   B — Prices for Approximate Estimates.

IMMEDIATELY below, Messrs. Davis and Belfield mention the principal changes which have occurred in the last month. Similar notes, and the deductions that may be drawn from them, will be published on this page each month.

NOTES ON PRICE CHANGES

Prices generally remain practically unchanged.

O. A. DAVIS, P.A.S.I.

PART 2

Prices vary according to quality and quantity ordered.

Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS AND BELFIELD, P.A.S.I.

JOINER

Prices are for standards in one delivery; when less than a standard is required, or special lengths, add £1 per standard

Joinery Timber

			Per standard £ s. d.	Per foot cube s. d.
3″ × 9″	Scantling	2nd Archangel	41 0 0	4 11¾
3″ × 9″	,,	3rd ,, ...	27 0 0	3 3½
2″ × 9″	,,	2nd ,, ...	46 10 0	5 7¾
2″ × 9″	,,	3rd ,, ...	27 10 0	3 4
3″ × 8″	,,	2nd ,, ...	32 0 0	3 10¾
3″ × 8″	,,	3rd ,, ...	24 0 0	2 11
2″ × 8″	,,	2nd ,, ...	34 0 0	4 1½
2″ × 8″	,,	3rd ,, ...	24 0 0	2 11
3″ × 7″	,,	2nd ,, ...	31 10 0	3 10
3″ × 7″	,,	3rd ,, ...	23 0 0	2 9½
2″ × 7″	,,	2nd ,, ...	34 0 0	4 1½
2″ × 7″	,,	3rd ,, ...	22 0 0	2 8
2″ × 6″	,,	u/s ,, ...	21 0 0	2 7½
1½″ × 11½	,,	3rd ,, ...	38 0 0	4 7½
1½″ × 9″	,,	u/s ,, ...	34 0 0	4 1½
1″ × 9″	,,	2nd ,, ...	46 10 0	5 7¾
1″ × 9″	,,	3rd ,, ...	34 10 0	4 2¼
1″ × 11″	,,	2nd ,, ...	49 0 0	5 11½
1″ × 11″	,,	3rd ,, ...	39 0 0	4 8¾
1¼″ × 9″	,,	2nd ,, ...	46 10 0	5 7¾
1¼″ × 9″	,,	3rd ,, ...	35 0 0	4 3
1¼″ × 11″	,,	2nd ,, ...	49 10 0	6 0
1¼″ × 11″	,,	3rd ,, ...	40 10 0	4 11

✱ **Items marked thus have fallen in price since August 25.**

JOINER—(*continued*)

Flooring

		⅞″	1″	1¼″
Yellow deal, plain edge in batten widths ..	per square	19/9	22/6	28/6
Ditto, T. & G.	per square	20/3	23/–	29/–
T. & G. rift sawn B.C. pine in 4″ widths ..	per square		29/–	
T. & G. random grain, in 4″ widths	per square		17/6	

Wall Linings

Deal Match Boarding :—

1″ × 6″ T.G.B.	per square	24/–
✱1″ × 4½″ T.G.V.	per square	23/6
●¾″ × 6″ T.G.B.	per square	19/–
●¾″ × 4½″ T.G.V.	per square	18/6
⅝″ × 6″ T.G.B.	per square	15/6
⅝″ × 4½″ T.G.V.	per square	15/–
½″ × 4½″ T.G.V.	per square	12/–

Asbestos-Cement :—

5/32″ Semi-compressed flat building sheets, grey	per yard super	1/3¾
3/16″ Ditto	per yard super	1/4½
¼″ Ditto	per yard super	1/11
¼″ Metal reinforced flat building sheets	per yard super	3/4

Prices are for orders of less than 1 ton.

● **Items marked thus have risen in price since August 25.**

CURRENT PRICES

BY DAVIS AND BELFIELD, P.A.S.I.

JOINER AND STEEL AND IRONWORKER

JOINER—(*continued*)

Wall Boards :—

Asbestos-cement wall board (in sheets 8′ 0″ × 4′ 0″ only) under 5,000 feet super	per foot super		–/2¾
Asbestos-cement stipple glazed sheets (in sheets 8′ 0″ × 4′ 0″ only)	per yard super		7/6
Ditto, plain white glazed sheets (in sheets 8′ 0″ × 4′ 0″ only) ..	per yard super		8/6
Marble glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″)	per yard super		7/6

	300 yards.	300–1,000 yards.	1,000–2,000 yards.
½″ Fibre board	2/–	1/10½	1/9

	25-75 yards	150–300 yards	Over 600 yards
⅜″ Fireproof plaster board per yard super	2/2	1/10	1/6
½″ Ditto .. .. .. per yard super	2/–	1/8	1/4
Joint tape (approx. 250 feet run) per roll			1/6
Joint filler .. .. per lb.			–/4

Plywoods :—

	4 m/m	5 m/m	6 m/m	9 m/m	12½m/m
Birch (A) per square	22/–	26/6	30/–	42/6	45/–
,, (B) per square	18/–	19/–	—	—	—
Japanese figured oak (A.A.) per square	33/6	37/–	38/6	65/–	—
Austrian oak, figured one side (A.A.) per square	—	71/6	77/6	99/6	117/6
Australian walnut, finely figured one side (boards 72″ × 36″) per square			¼″ 67/6	⅜″ 85/–	
Sycamore, figured one side (ditto) per square			75/–	85/–	
Honduras mahogany, figured one side (ditto) per square			75/–	—	
Honduras mahogany, finely figured (boards 84″ × 36″) per square			125/–	—	

Prices are for complete bundles.

Blockboards :—

Alder :—

Thickness			Boards 60″ × 183″	Boards 72″ × 183″
½″	.. ..	per square	67/–	73/6
5/8″	.. ..	per square	76/–	83/6
¾″	.. ..	per square	83/3	91/3
7/8″	.. ..	per square	87/3	96/3
1″	.. ..	per square	100/6	110/6
1¼″	.. ..	per square	122/–	134/–
1⅜″	.. ..	per square	128/–	140/–
1¾″	.. ..	per square	160/9	169/9

Birch :—

Thickness			Boards 54″ × 72″	Boards 60″ × 140″
½″	.. ..	per square	50/3	52/9
5/8″	.. ..	per square	57/3	60/3
¾″	.. ..	per square	63/3	67/–
7/8″	.. ..	per square	68/–	71/3
1″	.. ..	per square	75/–	77/9

Prices are for complete bundles.

Hardwoods

Joinery Quality.

English oak	per foot cube	15/–
American oak (plain)	per foot cube	10/–
,, ,, (quartered)	per foot cube	12/–
Australian Silky Oak (plain) ..	per foot cube	11/–
,, ,, ,, (quartered) ..	per foot cube	12/6
Walnut, European	per foot cube	18/–
Teak, Rangoon	per foot cube	15/–
,, African	per foot cube	12/–

● **Items marked thus have risen since August 25.**

JOINER—(*continued*)

✱Mahogany, Honduras	per foot cube	13/6
✱American whitewood	per foot cube	9/–
Birch	per foot cube	8/–
Cedar (aromatic)	per foot cube	16/–
✱Japanese oak (plain)	per foot cube	10/–
✱ ,, ,, (quartered)	per foot cube	12/–
✱Austrian oak (plain)	per foot cube	10/6
,, ,, (quartered)	per foot cube	14/–

Sundries

Slaters or sarking felt	per yard run	–/6
Roofing felt	per yard run	–/8
Bituminous hair felt	per roll	33/–
All rolls 25 yards long by 32″ wide.		
Cork slabs, 1″ thick (3′ 0″ × 1′ 0″)	per foot super	–/4½
,, 2″ thick (3′ 0″ × 1′ 0″)	per foot super	–/8
Slagwool	per cwt. (approx.)	12/–
Building paper in rolls of 100 yards, 1-ply, 60″ wide (B.I.80 and L.G.I.80)	per roll	67/6
Ditto, 2-ply, 60″ wide (B.I.80)	per roll	135/–
Ditto, 2-ply, 60″ wide (B.I.20)	per roll	202/6
"Cabots" Quilt :—(Ex Works Twelve roll lots delivered carr. free.)		
Double ply .. per roll 42/–	per half roll	23/6
All rolls 28 yards long by 36″ wide. Special terms for quantities.		
✱Cut steel clasp nails, 1″ per cwt. 30/6 ✱4″	per cwt.	21/6
✱ ,, ,, floor brads, 2″ ,, 20/9 ✱3″	per cwt.	19/9
✱Bright oval wire nails 1″ ,, 32/9 ✱4″	per cwt.	21/6
● Scotch glue	per cwt.	65/–

Floor Clips :—

		£ s. d.
One leg floor clip	per 1,000	8 8 0
2″ short leg floor clip	per 1,000	8 8 0
2″ Regular floor clip	per 1,000	8 15 0
3″ ,, ,, ...	per 1,000	9 0 0
2″ Regular ceiling clip	per 1,000	8 15 0
Single leg ceiling clip (7½″)	per 1,000	10 10 0

Special terms for quantities.

STEEL AND IRONWORKER

Steelwork

		£ s. d.
Basis price for rolled steel joists sections 5″ × 3″ to 16″ × 6″, in 10 ft. to 50 ft. lengths	per ton	13 0 0
Extras on above for :—		
9″ × 7″ Section	per ton	0 5 0
4″ × 3″, 5″ × 2½″, 10″ × 8″, 12″ × 8″, 14″ × 8″ and 16″ × 8″ to 20″ × 7½″ sections inclusive	per ton	0 10 0
3″ × 1½″, 3″ × 3″, 4″ × 1¾″, 4¾″ × 1¾″ and 24″ × 7½″ sections	per ton	1 0 0
Channels, angles and tees	per ton	14 0 0
Mild steel plates	per ton	14 0 0
Screw bolts	per ton	35 0 0

Fabricated Steelwork

		£ s. d.
Joists cut and fitted	per ton	17 0 0
Stanchions, ordinary sections with riveted caps and bases	per ton	20 0 0
Stanchions, compound	per ton	28 0 0
Plate girders	per ton	25 0 0
Framed roof trusses, 25′ 0″ span	per ton	25 0 0
,, ,, ,, 60′ 0″ span ..	per ton	23 0 0

Prices ex stock are higher, and definite quotations should be obtained.

Prime Galvanized Corrugated Iron Sheets

(Ex London Stocks)

	10 cwt. lots £ s. d.	Less quantity £ s. d.
4 to 9 fts. 18 or 20 gauge, 8/3″ corrugations .. .. .. per ton	20 0 0	21 0 0
10 fts. 18 or 20 gauge, 8/3″ corrugations	20 10 0	21 10 0
4 to 9 fts. 22 or 24 gauge, 8/3″ corrugations .. .. .. per ton	20 10 0	21 10 0
10 fts. 22 or 24 gauge, 8/3″ corrugations	21 0 0	22 0 0
4 to 8 fts. 26 gauge, 8/3″ corrugations ..	21 15 0	22 15 0
9 fts. 26 gauge, 8/3″ corrugations ..	22 5 0	23 5 0
10 fts. 26 gauge, 8/3″ corrugations ..	22 15 0	23 15 0

✱ **Items marked thus have fallen since August 25.**

CURRENT PRICES

BY DAVIS AND BELFIELD, P.A.S.I.

PLASTERER, PLUMBER AND INTERNAL PLUMBER

PLASTERER

Plaster and Cement

		1-ton loads	5-ton loads	
Sirapite (coarse)	per ton	70/–	64/–	
„ (fine)	per ton	78/–	—	
Victorite No. 1	per ton	85/–	78/6	6-ton loads
„ No. 2 or non sweat	per ton	80/–	73/6	
Thistle (browning, haired and pink finish)	per ton	70/–	64/–	
Thistle (fine)	per ton	78/–	—	
Pink plaster	per ton	66/–	—	
White plaster	per ton	78/–	—	
Keene's pink	per ton	112/6	—	
Keene's white	per ton	117/6	—	
Super Carbo	per ton	—	47/6	4-ton loads
Carbo-setting	per ton	—	57/6	

	1 ton upwards £ s. d.
Cullamix No. 2 cream (rendering mixture) per ton	5 10 0
„ No. 3 cream „ „ per ton	5 10 0
Snowcrete mixture „ „ per ton	5 5 0

Sundries

		Less than 150 yds.	Less than 300 yds.	Over 300 yds.
Sharp washed sand	per yard cube			8/9
Cow hair	per cwt.			40/–
Goat's hair	per cwt.			55/–
$\frac{3}{8}$″ laths	per bundle			2/–
$\frac{1}{4}$″ laths	per bundle			2/4½
Expanded metal lathing, 9′ 0″ × 2′ 0″ $\frac{3}{4}$″ mesh × 26 gauge	per yard super			–/11
Lath nails (galvanized) 1¼″ × 14 gauge ..	per cwt.			48/6
„ (bright wire) „ „ ..	per cwt.			27/–
½″ Plaster board ..	per yard super	1/–	–/11	–/10
1½″ Galvanized nails	per lb.		–/5	
Scrim cloth in 100-yard rolls	per roll		2/3	

Wall Tiles

Commercial quality.		
Ivory, white, etc., glazed 6″ × 6″ × ⅜″ ..	per yard super	9/9
Angle beads (1½″ wide)	per yard run	1/2¾
„ „ (1″ „)	per yard run	–/10
Rounded edge tiles	per yard run	2/6½
Coloured enamelled bright glazed, 6″ × 6″ × ⅜″	per yard super	14/3
Angle beads (1½″ wide)	per yard run	1/4¾
„ „ (1″ „)	per yard run	–/11¼
Rounded edge tiles	per yard run	2/7
Eggshell gloss enamelled, 6″ × 6″ × ⅜″ ..	per yard super	15/–
Angle beads (1½″ wide)	per yard run	1/7½
„ „ (1″ „)	per yard run	1/0¾
Rounded edge tiles	per yard run	2/8½

PLUMBER

Lead

✱3½ lbs. and upwards milled sheet lead in quantities of 5 cwts. and upwards ..	per cwt.	22/3
Add if cut to sizes	per cwt.	3/–
Lead ternary alloy, No. 2 quality extra over sheet lead	per cwt.	7/–
● Allowance for old lead delivered to merchant	per cwt.	12/9

Cast Iron Rainwater Goods (Painted or Unpainted)

The following prices for rainwater pipes and gutters are subject to 20 per cent. trade discount, and the prices of the fittings are subject to 5 per cent. and 20 per cent. trade discount.

Rainwater Pipes

	2″	2½″	3″	3½″	4″	4½″	5″	6″
Round pipes per yard	2/8½	2/9¾	3/7¾	4/0¾	4/9½	6/1¾	7/2¼	9/2
Shorts, 2′ 0″, 3′ 0″ and 4′ 0″ extra per yard	–/3¾	–/3¾	–/3¾	–/3¾	–/3¾	–/5	–/5	–/5
Bends .. .. each	1/9	2/–	2/6	3/–	3/7	5/–	6/6	8/5
Offsets, 4½″ and 6″ projection .. each	2/2	2/8	3/–	3/5	4/4	6/3	7/6	9/10
Offsets, 9″ projection each	2/10	3/2	3/9	4/8	5/7	7/6	8/10	11/2
Branches, single each	2/7	3/1	3/9	4/4	5/3	7/6	8/5	13/1
Shoes .. .. each	1/6	1/9	2/–	2/8	3/–	4/4	5/5	7/6

● **Items marked thus have risen since August 25.**

PLUMBER—(*continued*)

Square and rectangular pipes.

3″ × 3″	per yard 6/9¼
3½″ × 3½″	per yard 8/4
4″ × 2″ or 2½″	per yard 7/4¾
4″ × 3″	per yard 7/4¾
4″ × 4″	per yard 9/0¾
4½″ × 3″	per yard 8/5¼
5″ × 3″ or 3½″	per yard 9/7

Gutters

	3″	3½″	4″	4½″	5″	6″
Half round gutters per yard	1/9¼	2/1	2/1	2/2¼	2/4¾	3/7¾
Shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra .. per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/5	1/7	1/9	2/–	2/2	3/1
Stop ends .. .. each	–/5	–/5	–/7½	–/9	–/10½	1/–
Ogee gutters per yard	2/1	2/3½	2/4¾	2/6	2/9¾	3/10¼
Straight back and shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra .. per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/11	1/11	2/–	2/4	2/8	3/3
Stop ends .. .. each	–/6	–/7½	–/9	–/10½	1/–	1/3

Mild Steel Rainwater Goods

The following prices are subject to 7½ per cent. trade discount.

24 Gauge rainwater slip jointed pipes.

	2″	2½″	3″	3½″	4″
Galvanized round pipes with ears per 6′ 0″	2/7½	3/1½	3/9	4/3	4/9
Painted round pipes with ears per 6′ 0″	2/7½	3/–	3/4½	3/10½	4/3
Painted or galvanized short lengths with ears, extra each	–/6	–/6	–/6	–/6	–/6

18 Gauge Gutters.

	3″	3½″	4″	4½″	5″	6″
Galvanized half round gutters .. per 6′ 0″	2/–	2/3	2/4½	2/9	3/–	3/7½
Painted half round gutters per 6′ 0″	1/6	1/9	2/–	2/3	2/6	3/–
Painted or galvanized short lengths extra .. each	–/3	–/3	–/3	–/3	–/3	–/3

Asbestos-Cement Rainwater Goods

The following prices are subject to 10 per cent trade discount.

Rainwater pipes.

Prices are for 6′ 0″ lengths, and 10′ 0″ lengths in 2″, 2½″ and 3″ diameters. Short lengths up to 2′ 0″ are charged as one yard. From 2′ 0″ to 4′ 0″ charged as 1½ yards. From 4′ 0″ to 6′ 0″ charged as 2 yards. Over 6′ 0″ charged as 10′ 0″.

Round pipes.

2″	per yard run 1/10
2½″	per yard run 2/0¾
3″	per yard run 2/5¾
3½″	per yard run 2/11¼
4″	per yard run 3/4¾
4½″	per yard run 4/10¼
5″	per yard run 5/9½
6″	per yard run 7/1¾

Gutters.

Short lengths of gutter up to 2′ 0″ charged as 1 yard; from 2′ 0″ to 4′ 0″ as 1½ yards, and over 4′ 0″ as 2 yards.

	3″	4″	4½″	5″	6″	8″
Half round gutters per yard run	1/3¾	1/6¾	1/7¾	1/11	2/8	3/3½
Ogee gutters per yard run	—	1/11	2/0¾	2/5¾	3/0¼	3/11¼

INTERNAL PLUMBER

✱Lead pipe in coils, 5 cwts. and upwards ..	per cwt.	21/9
✱Lead soil pipe	per cwt.	24/9
Add if ribbon marked	per cwt.	–/3
Lead ternary alloy, No. 2 quality extra over lead pipe	per cwt.	7/–
Plumber's solder	per cwt.	85/–
Tinman's solder	per cwt.	111/–

Drawn lead traps with brass screw eye, 6 lbs.

		1″	1¼″	1½″	2″
S. trap	each	1/7	1/9	2/2	3/2
P. trap	each	1/4	1/6	1/10	2/7
Extra for 3″ deep seal	each	–/6	–/6	–/6	–/6

✱ **Items marked thus have fallen since August 25.**

CURRENT PRICES

INTERNAL PLUMBER

BY DAVIS AND BELFIELD, P.A.S.I.

INTERNAL PLUMBER—(*continued*)

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.

Tubes.		½″	¾″	1″	1¼″	1½″	2″
Tubes 2 ft. long and over	per ft.	–/5½	–/6¾	–/9¼	1/1	1/4½	1/10
Pieces 12″ to 23½″ long	each	1/1	1/5	1/11	2/8	3/4	4/9
Bends	each	–/11	1/2	1/7½	2/7½	3/2	5/2
Fittings.							
Elbows, square ..	each	1/1	1/3	1/6	2/2	2/7	4/3
Elbows, round ..	each	1/2	1/5	1/8	2/4	2/10	4/8
Tees	each	1/3	1/7	1/10	2/6	3/1	5/1
Crosses	each	2/9	3/3	4/1	5/6	6/7	10/6
Sockets, plain ..	each	–/4	–/5	–/6	–/8	–/10½	1/3
Sockets, diminished	each	–/6	–/7	–/9	1/–	1/4	2/–
Flanges	each	1/–	1/2	1/4	1/9	2/–	2/9
Caps	each	–/5	–/6	–/8	1/–	1/3	2/–
Plugs	each	–/4	–/5	–/6	–/8	–/10	1/3

Fittings and flanges and tubes ordered in long random lengths are subject to the following trade discounts :—

	Tubes	Fittings	Flanges
Gas	62½%	53⅛%	57½%
Water	58¾%	50%	52½%
Steam	56¼%	46¼%	47½%
Galvanized gas	53¾%	46¼%	47½%
,, water	48¾%	42½%	42½%
,, steam ..	43¾%	38¾%	37½%

Brasswork. Best Quality

		½″	¾″	1″
Chromium plated screw-down bibcocks, screwed for iron ..	per dozen	34/6	56/3	99/–
Ditto, with screw ferrule	per dozen	43/–	67/3	105/6
Ditto, with capstan head lettered, screwed for iron ..	per dozen	40/6	62/3	108/–
Ditto, with screw ferrule	per dozen	49/–	73/3	124/6

		Brass Screwdown Stop Cocks with Unions both Ends	Brass Screwdown Stop Cocks with Screwed Ends	Brass Screwdown Stop Cocks with Male Screwed End and Iron Unions
½″	per dozen	37/6	43/–	35/–
¾″	per dozen	59/–	65/–	54/–
1″	per dozen	90/–	97/6	84/–
1¼″	each	12/9	13/6	12/–
1½″	each	20/6	21/6	19/–
2″	each	39/9	41/3	37/6

		½″	¾″	1″
Portsmouth pattern ball valve for low pressure, screwed for iron ..	each	3/7	5/5	11/3
Ditto, with flynut and union ..	each	4/3	6/3	12/9
High pressure ditto, screwed for iron	each	3/7	5/5	11/3
Ditto, with flynut and union ..	each	4/3	6/3	12/9

		2″	2½″	3″	4″
Socket thimble sloping shoulder	per dozen	10/–	13/–	15/9	22/3

		1¼″	2″	2½″	3″
Flanged ferrule thimble ..	per dozen	7/9	9/–	13/6	16/–

		½″	¾″	1″	1¼″	1½″	2″
Union joints for lead and iron ..	per dozen	7/6	10/3	14/–	26/–	42/6	92/–
Single nut short boiler screws ..	per dozen	6/–	9/–	14/3	21/–	33/–	60/–
Double nut boiler screws	per dozen	8/3	9/9	15/–	22/6	43/6	69/–

Belfast sink wastes stamped brass with brass plug diameter of outlet 2″ .. .. per dozen 18/–

Galvanized Mild Steel Open Top Cisterns riveted with internal angle iron at top and corner plates

The following prices are subject to 15% and 20% trade discount :—

		14-gauge £ s. d.	12-gauge £ s. d.	¼″ plate £ s. d.	⅜″ plate £ s. d.
50 gallon capacity	each	2 5 11	2 14 5	3 1 7	7 0 8
100 ,,	each	3 8 9	4 2 11	4 16 9	9 10 8
200 ,,	each	6 6 9	6 19 5	7 18 3	13 1 0
500 ,,	each	12 6 0	13 16 1	15 16 3	22 6 9
1,000 ,,	each	—	21 9 4	24 19 5	34 15 4

INTERNAL PLUMBER—(*continued*)

Galvanized Hot Water Tanks, fitted with handhole cover.

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to a pressure of 1 lb. per sq. inch = 1½ ft. head of water £ s. d.	14-gauge tested to a pressure of 3 lbs. per sq. inch = 4½ ft. head of water £ s. d.	12-gauge tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water £ s. d.	¼″ plate tested to a pressure of 10 lbs. per sq. inch = 15 ft. head of water £ s. d.
20 gallons	each	2 0 3	2 3 11	2 7 8	2 12 9
40 ,,	each		3 1 7	3 9 0	3 16 8
			Tested to a pressure of 5 lbs. per sq. inch = 7½ ft. head of water		Tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water
60 ,,	each		4 19 3		5 5 5
80 ,,	each				7 5 7
100 ,,	each				8 4 5

Screwed flanges or bosses

½″	¾″	1″	1¼″	1½″	1¾″	2″	2¼″	
1/8	2/–	2/4	2/11	3/4	3/9	4/8	6/9	Extra per flange or boss.

2½″	3″	3½″	4″	4½″	5″	6″
8/4	14/3	16/9	19/3	26/11	30/1	45/1

Galvanized Hot Water Cylinders, Mild Steel Riveted throughout, without Manhole, with usual number of flanges

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to 5 lbs. pressure = 10 ft. head of water £ s. d.	14-gauge tested to 15 lbs. pressure = 30 ft. head of water £ s. d.	12-gauge tested to 20 lbs. pressure = 40 ft. head of water £ s. d.	¼″ plate tested to 25 lbs. pressure = 50 ft. head of water £ s. d.
20 gallons	each	1 18 7	2 2 8	2 8 4	2 15 4
40 ,,	each	2 10 11	2 16 8	3 6 1	3 15 0
65 ,,	each		4 8 7	5 1 8	5 16 1
75 ,,	each		5 1 7	5 15 0	6 11 4
85 ,,	each			6 10 8	7 11 9
100 ,,	each				8 2 5

Cast Iron Soil Pipes and Connections, L.C.C. $\frac{3}{16}$″ metal.

The following prices for soil pipes are subject to 20% trade discount, and the prices of the fittings are subject to 20% and 5% trade discount.

	2″	2½″	3″	3½″	4″	5″ ¼″ metal	6″ ¼″ metal
Minimum weights in lbs. per 6′ 0″ length	24	30	35	41	46	78	92
Pipes coated or uncoated per yard run	3/10½	4/0¾	4/5¾	5/–	5/8¾	11/8	14/0¾
Double sockets extra each	–/11¼	–/11¼	–/11¼	–/11¼	–/11¼	1/0½	1/0½
Short lengths extra 2′, 3′ and 4′ per yard run	–/3¾	–/3¾	–/3¾	–/3¾	–/3¾	–/5	–/5
Single spigot branch cast on pipe .. .. each	4/3	4/5	4/7	4/9	4/11	7/6	9/3
Single socket branch cast on pipe .. .. each	10/9	11/–	11/3	11/6	11/9	16/–	19/–
Bends, standard angles each	3/1	3/5	3/9	4/8	5/3	9/4	12/9
Large radius bends each	4/–	4/4	5/–	6/–	7/–	13/–	16/9
Inspection bends raised flange door, 4 gunmetal bolts .. .. each	16/1	16/11	17/9	18/8	19/3	31/10	36/6
Swannecks 4½″ and 6″ projection .. .. each	3/9	4/4	5/11	6/10	7/11	14/11	20/1
9″ ditto .. .. each	5/–	5/7	6/10	7/11	9/4	17/1	22/10
12″ ditto .. .. each	5/11	6/10	7/11	9/8	10/7	19/1	27/1
Single branch with two sockets. T pieces. T pieces diminishing two sockets, inverted two sockets.	3/9	4/8	5/7	6/6 each	7/6	15/10	21/8
Parallel branch pieces not exceeding 6″ centres. Y pieces. Anti-syphon branches with curved arm.	4/10	5/11	6/10	7/11 each	8/11	—	—
Double branch pieces, three sockets .. .. each	5/11	7/–	7/11	9/–	10/3	20/3	27/3
Inspection branch pieces double oval access door, 2 gunmetal screws each	12/11	14/–	14/11	16/6	17/9	29/2	36/2
Long branch pieces each	5/–	6/–	7/3	8/6	9/9	19/–	25/–

CURRENT PRICES

BY DAVIS AND BELFIELD, P.A.S.I.

COPPERSMITH AND ZINCWORKER, GLAZIER AND PAINTER

COPPERSMITH AND ZINC WORKER

Copper

*Hot rolled copper sheeting in 1 cwt. lots, all gauges to 24 wire gauge	per lb.	–/9
Copper tube, seamless solid drawn	per lb.	1/0½
*Copper wire, 10 and 12 gauge	per lb.	–/9
Copper nails, 1″ and up	per lb.	–/10½

Fittings for Copper Tubes

Compression Type:	½″	¾″	1″	1¼″	1½″	2″	2½″
Straight coupling each	1/1½	1/4¾	2/0¾	2/8	3/9¾	5/7¾	14/–
Obtuse elbow each	1/10¼	2/2½	3/3	4/1½	7/1¼	10/5¾	—
Tees each	2/1½	2/5½	4/–	5/9½	9/3	13/1½	19/3½
Crosses each	3/–	3/4¾	5/2¼	6/3¾	10/11¼	15/3	26/4¾
Reducing coupling each	—	1/4¾	2/0¾	2/8	3/9¾	5/7¾	14/–
Bends each	1/7¼	1/11¼	2/11	3/8¾	6/7½	9/10¾	14/1
Brass stop cocks each	3/11½	5/10¾	8/7¼	15/11¾	22/3¾	37/8¾	—

Extra for Polishing 25%; Chromium plating 50%; Nickel plating and polishing 50%.

Capillary Type							
Straight coupling each	–/7¼	–/10¼	1/3¾	1/8½	2/3¾	3/4½	5/9
45° elbow each	1/3¾	1/8½	2/4½	3/2	4/9	7/1½	11/1
Tees each	1/5½	1/7¾	2/8	3/11½	5/7½	8/3¾	12/8
Crosses each	1/10¼	2/0½	3/4½	4/9	7/2¼	10/6	18/2½
Reducing coupling each	—	–/6½	–/8¾	1/0¾	1/7	2/9½	4/4½
Bends each	1/7	1/11	2/9¼	3/9¼	5/11¼	8/3¾	11/10½
Pillar tap connection each	1/–	1/5½					

Extra for Polishing 15%; Chromium plating 40%; Nickel plating 27½%.

Zinc

		Quantities of less than 3 cwts.	Quantities of more than 3 cwts.	Quantities of more than 5 cwts.
Sheet zinc, 10 gauge and up	per cwt.	33/–	32/6	32/–
			5 sheets and under	12 sheets
8 gauge zinc safe hole perforated sheets, size 8′ 0″ × 3′ 0″	per sheet		4/9½	4/0½
7 gauge ditto	per sheet		4/2¾	3/7
6 gauge ditto	per sheet		3/9½	3/3

GLAZIER

Sheet Glass cut to size (ordinary glazing quality)

		In squares not exceeding 2 ft.	4 ft.	5 ft.	Over 6 ft.
18 oz. clear sheet	per foot super	–/2¼	–/2¾	–/3	–/3¼
24 oz. ditto	per foot super	–/2¾	–/3¾	–/4	–/4½
32 oz. ditto	per foot super	–/4	–/5½	–/6½	–/7½
Obscured sheet glass net extra		–/1½	–/1½	–/1½	–/1½
⅛″ figured rolled glass, white	per foot super	–/6½			
⅛″ ditto, normal tints	per foot super	–/9½			
Hammered, double rolled, Cathedral white	per foot super	–/6			
Ditto, normal tints	per foot super	–/8½			

Thick Drawn Sheet Glass cut to size

		In squares not exceeding 1 ft.	2 ft.	3 ft.	4 ft.	6 ft.	8 ft.
3/16″ thick	per foot super	–/9	–/11	1/–	1/2	1/3	1/4
¼″ thick	per foot super	–/11	1/–	1/3	1/5	1/7	1/9
		In squares not exceeding 12 ft.	20 ft.	45 ft.	65 ft.	90 ft.	100 ft.
3/16″ thick	per foot super	1/6	1/7	1/9	—	—	—
¼″ thick	per foot super	1/10	2/2	2/4	2/8	3/–	3/–

For selected glazing quality add 10 per cent. to the above prices.

British or Foreign Polished Plate Glass cut to size

Ordinary ¼″ Substance		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
In Plates not exceeding				
1 ft. super	per foot super	1/–	1/3	1/7
2 ,,	per foot super	1/4	1/6	1/10
3 ,,	per foot super	1/10	2/1	2/6
4 ,,	per foot super	2/6	2/9	3/2
6 ,,	per foot super	2/10	3/–	3/6
8 ,,	per foot super	2/11	3/4	3/8
12 ,,	per foot super	3/1	3/8	3/11
20 ,,	per foot super	3/1	3/9	4/1
45 ,,	per foot super	3/3	4/–	4/4
65 ,,	per foot super	3/7	4/3	4/11

GLAZIER—(*continued*)

British or Foreign Polished Plate Glass cut to size—(contd.)

Ordinary ¼″ Substance		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
In Plates not exceeding				
90 ft. super	per foot super	3/11	4/8	5/1
100 ,,	per foot super	4/–	4/10	5/4

Plates exceeding 100 ft. super or 160 in. long or 104 in. wide at higher prices.

The usual thickness of polished plate glass is about ¼″, but if required of special thickness for glazing purposes add to the above for :—

		Plates up to and including 4 ft. super	All plates over 4 ft. super
⅛″ to 3/32″	per foot super	–/2	–/4
⅛″ to 3/16″ exact	per foot super	–/2	–/3
3/16″	per foot super	No extra	–/1½
¼″ bare	per foot super	,,	–/1¾
¼″ exact	per foot super	–/2	–/2
5/16″ to ⅜″	per foot super	No extra	–/4½
⅜″ exact	per foot super	–/2	–/6

Special quotations should be obtained for other qualities and thicker substances.

Silvering

		Ordinary Quality on Polished Plate, Thick Drawn Sheet, Patent Sheet and Plain Sheet	On Embossed or Decorative Work
12 ft. super or 90 in. long	per ft. super	9d.	1/4
20 ft. ,, or 100 in. long	per ft. super	10d.	1/4
45 ft. super, 50 ft. ,, or 110 in. long	per ft. super	1/–	1/5
		1/0½	1/6
55 ft. ,, 60 ft. ,, or 120 in. long	per ft. super	1/1	1/6½
		1/1½	1/7
65 ft. ,, 70 ft. ,, or 130 in. long	per ft. super	1/2	1/8
		1/3	1/9½
75 ft. ,, 80 ft. ,, or 140 in. long	per ft. super	1/4	1/11
		1/5	2/0½
85 ft. ,, 90 ft. ,, or 150 in. long	per ft. super	1/8	2/5
		1/11	2/9½
95 ft. ,, 100 ft. ,, or 160 in. long	per ft. super	2/2	3/2
		2/5	3/8

For silvering on fluted sheet, figured rolled and cathedral, add 4d. a foot to the prices set out in the first column for polished plate, etc.

Silvering bent glass, double or more, according to bend.

For plates over 100 ft. super, add 3d. per ft. super for every 5 ft. or part of same.

Plates over 160 in. long at special rates.

Stripping for re-silvering, add 8d. per ft. super.

Wired Glass Cut to Sizes

¼-in. Georgian rough cast	per ft. super	10d.			
		In squares not exceeding 1 ft.	2 ft.	3 ft.	4 ft.
¼-in. Georgian polished plate	per ft. super	2/6	2/8	2/10	3/2
		8 ft.	12 ft.	20 ft.	30 ft.
¼-in. Georgian polished plate	per ft. super	3/8	3/10	4/2	4/6

Supplied in sizes up to 110 in. long and up to 36 in. wide.

For cutting to allow for wires in adjacent pieces to be "lined up," add 4d. per foot super.

PAINTER

White ceiling distemper	per cwt.	11/6
Washable distemper	per cwt.	60/–
Petrifying liquid	per gallon	4/6
Ready mixed white lead paint (best) 5-cwt. lots, in 14 lb. tins	per cwt.	68/–
White enamel	per gallon	25/–
Aluminium paint	per gallon	20/–
Stiff white lead, genuine English stack process, 1-ton lots, in 1-cwt. kegs	per cwt.	48/3
Driers	per cwt.	36/–
Linseed oil raw (5-gallon drums)	per gallon	3/–
,, boiled ,, ,,	per gallon	3/3
French polish	per gallon	11/6
Knotting	per gallon	16/–
Oil stain	per gallon	12/–
Varnish, oak	per gallon	10/–
,, copal	per gallon	16/–
,, flat	per gallon	20/–
Turpentine, genuine American, 5-gallon lots	per gallon	3/2
Creosote, 1-gallon lots	per gallon	1/4
Putty	per cwt.	13/–
Size	per firkin	3/6
Best English quality gold leaf, 23 carat	per book	2/4½
Extra thick, ditto	per book	3/6

* Items marked thus have fallen since August 25.