BEFORE AND AFTER ALTERATION

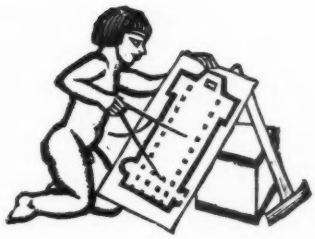
SHOWROOMS IN FORE STREET, HERTFORD

ON the left is a photograph of a house in Fore Street, Hertford, which has recently been converted into showrooms for the Tottenham Gas Company. The other photograph shows the building after conversion. The work was carried out under the direction of Mr. W. F. Blagg.

NEW UNIVERSITY OF ROME

The new University City of Rome was opened on October 28. In April, 1932, the Fascist government came to a decision upon the question of a new university, which had been discussed since 1870, and an agreement for its construction was signed. The general supervision of the whole of the buildings, which are intended to be a centre of study for all Italy, was carried out by the architect Marcello Piacentini, assisted by a representative group of the younger Italian architects. The architects who took part in the work were: Annaldo Foschini, Pietro Aschieri, Giovanni Michelucci, Giuseppe Capponi, Giuseppi Pagano, Giovan Battista Ponti, and Gaetano Rapisardi. The total cost of the whole work was approximately £1,500,000.

The photographs show: above, looking towards the library and great hall; below, the main approach avenue from the rectorate.



INFORMATION

IT is now nearly three years since the first Information Sheet from the Office Book of Sir John Burnet, Tait and Lorne was published in this JOURNAL, and the foundations then so generously built by the original designers are now carrying a formidable superstructure of information which has grown steadily in volume from week to week.

The original Information Book was a manual of the standard office practice of the particular architects concerned in its production, and made no pretence to be a complete statement of all the ways of doing one particular job. As such it was a well-developed skeleton for a full-length treatise on the plan requirements, construction, finishes and equipment of all types of building, and for the last two years it has been the aim of this JOURNAL to amplify the original work and provide the architectural profession with readily accessible information in a standardized form.

The problem was by no means an easy one. The co-operation of a large number of manufacturers was essential and the work of sifting this mass of heterogeneous information and presenting it in an intelligible form was undertaken by those responsible for the original Information Book. So far so good. The manufacturers have seen the advantages of the scheme and have been more than amenable to the suggestions of Sir John Burnet, Tait and Lorne, who have the right to reject any material which they consider unsuitable for inclusion.

The ideal arrangement for such a series of Information Sheets would be a logical series of headings and sub-sections, each one of which would be a complete and final statement of the problems involved, subject only to revision as and when improvements in architectural practice rendered the information out of date. This method, however, would involve several years of preparation, and the profession would, in the meantime, be deprived of essential information. It was decided, therefore, that the publication of the Sheets should be started at once, the actual order of publication depending upon the availability of the required information.

When the new and amplified Library of Planned Information was started two years ago it became at once apparent that the amount of information available was so enormous that the original rate of one Information Sheet each week would have to be increased if there was ever to be any possibility of the ultimate completion of the Library. Two Sheets, therefore, have been published each week, and the total number of Sheets is rapidly approaching three hundred.

The field covered by these Sheets has been exceptionally wide, varying from formulæ for beam calculations to the dimensions of perambulators and methods for the extermination of the death-watch beetle. The Library is growing, the well-articulated skeleton of the original scheme is being gradually clothed and is gaining weight as time goes on. But even so the information waiting to be published is of staggering proportions, and although the way is clearer, the end seems to remain a long way ahead.

For the present it has been decided to increase the rate of progress by publishing three Sheets each week instead of two, for the Library has gained a certain amount of momentum, and manufacturers are realizing that information presented in a rational form is worth the labour of production.

There is, however, a secondary problem which is now growing to a question of importance. We know that the great majority of our subscribers keep the Sheets as they appear from week to week, and we know that these Sheets are of use, but are they as easily accessible as they should be ?

The indexing of the Sheets is a complicated task and has, so far, been done alphabetically, without any attempt at the grouping of Sheets; though spaces are provided in the index and on the Sheets themselves for architects to fill in the references of their own filing systems. To attempt the grouping of Sheets for an imaginary " average subscriber " has been too difficult a task to embark upon without fuller data.

Mr. Oscar Bayne, who is responsible for the production of the Information Sheets, to the approval of Sir John Burnet, Tait and Lorne, outlined last week his personal scheme for the grouping of Sheets under subject headings. This scheme is not put forward as the ultimate solution to this particular problem, it is merely stated as a solution which has worked under one set of circumstances.

The Library of Planned Information is designed to make the path of the architect a little easier. Is it possible for architects to put forward suggestions for the proper filing of Sheets ? There may be several systems which work well enough in practice and which would provide useful suggestions for the possible future production of a comprehensive scheme.

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NOTES & TOPICS

THE ELECTION

SOME weeks ago, well before nomination day in fact, I called upon architects (nobody else seemed to be doing the calling) to present themselves as candidates for election to Parliament. I implored architects to take upon themselves this responsibility, and subsequently to use their influence in the House to see that the ideals for which they stand are not submerged under stupid misunderstanding.

*

There are one or two new architectural names in the election returns, but none has delighted me more than that of Mr. Richard Acland, the successful candidate for the Barnstable division of Devonshire.

*

—Delighted me, because with any luck this young architect may give years of parliamentary service to his profession . . . for Mr. Acland is as yet only a probationer of the R.I.B.A. and a student in the A.A. School.

*

—Delighted me, too, because in a year or two's time, he will probably become the first architect trained in a recognized school of architecture to become a Member of Parliament.

TOWN PLANNING OFFICERS

I was glad to see that Major Leslie Roseveare, in his presidential address to the Town Planning Institute, stressed the importance of local authorities employing trained town planning officers. No local authority would think of employing an untrained private practitioner as architect or as anything else.

THE BUILDING RESEARCH BOARD

The Report for 1934 of the Building Research Board, issued last Monday, records that a specially appointed Committee is investigating materials and methods of construction suitable for working-class flats, and that research work on costs is proceeding.

*

This should be extremely useful, for if new methods and materials are found by the Committee to be suitable, it may encourage their use by housing authorities who are now always haunted by the bogy of loan repayments and can seldom be persuaded to sanction any material that has not had the approval of at least 200 years.

TROLLEY BUSES

I found myself recently in one of the new trolley buses, in the region of Hampton Court. They are excellent to travel in, silent, smooth and comfortable, and not uncomely to look upon. My driver was probably an old tramway man, for I detected an odd flair in him for keeping the bus along the old tramlines.

*

Later I walked along towards the old Church and was there astounded to see a trolley bus not only leave the tramlines but also leave the overhead wires, run steadily up the side lane, reverse, run back on to the main road and so connect up with the overhead wires again.

*

"Batteries," the local roadsweeper told me. "And if the troof were known I don't believe they need them there oerhead wires at all."

PARLIAMENT SQUARE

It is a great pity that the First Commissioner of Works cannot see his way to contribute to the cost of buying the Westminster House site to add to the Canning Enclosure in Parliament Square. I published a plan on this page some months ago which showed what a vast improvement the addition of this site would be, but amenities seem to be a lost cause if it involves spending more than a few hundreds.

BRAKE ON PROGRESS

A week or two ago, I commented upon the brake on progress which strict divisions of skilled labour seem to give. Since then, I have learned of several architects who have experienced the "who-shall-fix-the-plaster-slabs" trouble which I mentioned.

*

Since then, too, I have had trouble on a country job about the fixing of some thick opaque glass shelves. The plumber supplied them (I suppose it ought to have been the glazier), but the joiner fixed them because one end wanted wood fillets fixed to a cellulosed wood partition.

*

Similar glass fixed to a bricklayer's wall was the work of the plasterer (I suppose it ought to have been the wall tiler), and a hole in this for the fixing of an electric light globe (of exactly similar glass) was made by the electrician,

The "War God" by Eric Kennington; from the 1935 Exhibition of Artists against War and Fascism, organized by the Artists' International Association. The exhibition is now open at 28 Soho Square, W.C.1.

and another hole for the fixing of a tooth brush rack was made by the plumber.

*

The whole thing was scarcely two feet square and, when a heating fitter came along and accidentally smashed the glass with the swinging end of a towel rail, five different men had to replace it.

*

The next time I want this sort of cupboard making, I shall include a p.c. sum in the contract for a poorer standard fitting; and pay through the nose for one uncategoried specialist to screw it into position.

EXHIBITION WITH A PURPOSE

The topical phrase "United Front" is translated into very practical terms this week at Number 28 Soho Square, where a galaxy of distinguished artists have co-operated to produce a really first-rate exhibition under the title, "1935 Exhibition of Artists against War and Fascism."

*

The exhibition has been staged by the Artists' International Association, and follows its more modest effort of a year ago. In that exhibition a propagandist content in the pictures was called for, with the result (inevitable in art's present sociological position) that the artistic standard was none too high.

*

This time the Association decided that in an art exhibition the art came first, and that good art was its own propaganda. It invited artists to submit work of their own kind as a gesture of agreement with the aims of the exhibition implied in its title.

*

The result is the genuine "United Front" referred to and the really high standard of the exhibits. The latter can be gauged from the list of sponsors on the invitation card, all of whom have sent characteristic works: Augustus John, Eric Gill, Paul Nash, Dame Laura Knight, Henry Moore and Duncan Grant.

*

The moral is driven home by a quotation printed over the door—from a Nazi newspaper: "So long as there remains in Germany any unpolitical, neutral or individualistic art, our task is not ended."

REGISTRATION

At the R.I.B.A. Informal General Meeting last week, I noticed that not a single speaker spoke against Registration. Indeed, from everyone, young or old, assistant or principal, advanced designer or traditional copyist, there was unanimity to take Registration a step further and make it one of the means of giving the public a better, more efficient, architectural service.

PANTOMIME

Some old friends at the A.A. told me yesterday that rehearsals for the Pantomime 1935 are in full swing. The show, I understand, is to be in the form of a review and one or two scenes are to be re-enacted from the pantos of some 25 and 15 years ago.

*

I remember that some of the songs just after the war period had a lilt with them which has never quite been captured since. And the costumes. . . . I wonder if some of those which Rickards designed many years ago will be revived?

*

Many people are assisting in these revival scenes, I learn, and it is whispered that even Mr. Yerbury himself is writing a devastating ditty.

ARTS AND CRAFTS

I am not usually moved unduly by those time-honoured words "Arts and Crafts," but when I attended the present exhibition on the second floor at Dorland House I was immediately interested.

*

Most of the arts and crafts were there and looked much the same as they have done for the past decade. What *was* different was the exhibition setting, one of the best of its kind I have seen. Congratulations to Mr. A. L. Osborne, who arranged this setting, and especially for the way in which he has used plan arrangement as decoration and not merely as means of circulation.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*In the housing work to be undertaken during the next ten or twenty years should we allow ourselves to be bound by traditional methods either in design or construction, or even in the methods of management?*" .. 765

"*The architecture which is acceptable in Central Europe and in that vast gloomy plain called Russia is inappropriate and psychologically unfunctional in England*" 766

"*A larger central organization for London than the L.C.C. is required in order to control regional planning in Greater London with, of course, decentralization to the constituent bodies*" 772

YORK MINSTER

The Dean and Chapter of York have appointed Sir Charles Peers, F.S.A., as consulting architect to York Minster. The vacancy was caused by the death of Sir Walter Tapper.

INTERNATIONAL EXHIBITION OF CHINESE ART

In addition to the fourteen official lectures that have been announced to take place at the Meeting Room of the Royal Society, Burlington House, in connection with the International Exhibition of Chinese Art, there will be two extra lectures which will be delivered by Professor J. G. Andersson, of the Museum of Far Eastern Antiquities, Stockholm, and Professor Bernhard Karlgren, Professor of Sinology in the University of Goteburg. The first will be on December 4, by Professor Karlgren, subject: "Yin and Chou in Chinese Bronzes," and the second on December 5, by Professor Andersson, subject: "The Goldsmith in Ancient China." They will be held at 5 p.m.

The exhibition will open to the public on Thursday next, November 28, at 9.30 a.m.

MORE LONDON SLUM CLEARANCE

The L.C.C. is to spend nearly £220,000 on four extensive slum clearance schemes in Poplar, Greenwich, Marylebone and Camberwell. In Poplar 80 houses and eight shops near the High Street are to be demolished, and some 600 people will be rehoused.

In Greenwich 100 houses and 515 people are affected, and in Marylebone 1,096 people and 100 houses, including some tenements. In Camberwell nearly 300 houses and other property on a 10-acre site are to go. The scheme involves the displacement of 1,198 people, and the rehousing will accommodate 2,942.

THE ARCHITECTS' DIARY

Thursday, November 21

INSTITUTION OF STRUCTURAL ENGINEERS, Yorkshire Branch. *At the Hotel Metropole, Leeds. "Vibration and Previbration in Concrete." By T. J. Guerittee.* 7 p.m.

LONDON SOCIETY. *Visit to two City churches: All Hallows, Lombard Street, E.C.3, and St. Edmund King and Martyr, Lombard Street.* 2.30 p.m.

SOUTH WALES INSTITUTE OF ARCHITECTS (Central Branch) AND THE INSTITUTE OF BUILDERS (South Wales Branch). *"Modern Churches." By Edward Maufe, M.A., F.R.I.B.A.*

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1. "A Dark Age Fort on the Antrim Coast." By Professor V. Gordon Childe.* 8.30 p.m.

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "London of the 18th Century." By H. Warren Wilson.* 7.30 p.m.

PUBLIC WORKS, ROADS, AND TRANSPORT CONGRESS AND EXHIBITION. *At the Royal Agricultural Hall, N. Until November 23.* 10 a.m. to 7 p.m.

Friday, November 22

ARCHITECTURE CLUB. *Twenty-fifth dinner, to be held at the Savoy Hotel, W.C.2. The Rt. Hon. Herbert Morrison, M.P., will speak on "Replanning London."* 7.45 p.m.

INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS. *Annual Dinner. At the Dorchester Hotel, W.1.* 7 p.m.

INSTITUTION OF HEATING AND VENTILATING ENGINEERS. *London and District Branch. At the Borough Polytechnic, Borough Road, S.E.1. "Bronze Welding of Copper Piping." By W. L. Kilburn.*

Saturday, November 23

INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS, 43 *Grosvenor Place, S.W.1. Annual General Meeting.* 2.30 p.m.

LONDON SOCIETY. *Visit to the site of the old Carthusian Monastery, Charterhouse Square, E.C.1.* 2.30 p.m.

Tuesday, November 26

LONDON SOCIETY. *Visit to the new building of W. H. Smith and Son, Albert Embankment, Kennington, S.E.11.* 2.30 p.m.

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Exhibition of hand specimens of timber and veneers, photographs, a series of Information Sheets and Publications. Until December 17.*

GUY'S £50,000 EXTENSION

A start is expected next summer on the new pathology block at Guy's Hospital, which is estimated to cost £50,000. It will occupy the site now covered by warehouses between the Medical School and the Borough High Street.

HOUSING AND TOWN PLANNING CONFERENCE

The National Housing and Town Planning Conference is to be held at Scarborough from Friday, November 29, to Monday, December 2.

GARAGE UNDER LEICESTER SQUARE

The Improvements Committee of the Westminster City Council, which has been considering a proposal to make a garage beneath the gardens of Leicester Square, reports that the gardens cannot be used for this purpose without further statutory powers.

EXHIBITION OF ARCHITECTURAL DRAWINGS

An exhibition of architectural drawings by Mr. Laurence Wright is now being held at Mappin House, 156 Oxford Street, W. The exhibition will remain open until November 30, between the hours of 10 a.m. and 6.30 p.m.

WELSH SCHOOL OF ARCHITECTURE

Mr. Raymond Walker, of the Coal Utilization Council, lectured on "Heat, Health and Comfort" at a joint meeting of the Welsh School of Architecture and the Central Branch of the South Wales Institute of Architects, held at the Technical College, Cardiff, on November 13. Mr. W. S. Purchon presided.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

A lecture entitled "Impressions of European Architecture To-day" was given by Professor Lionel B. Budden at a meeting of the West Yorkshire Society of Architects, held at Leeds on November 14 under the chairmanship of Mr. Victor Bain.

Professor Budden said that a revolution was in progress which would revitalize architecture and make it once again a significant art. In the eighteenth century the true tradition had been put aside and conflict and confusion resulted. Building and engineering were put into one category and architecture in another. In the nineteenth century it was held that buildings in which a high degree of economy and utility were required were not worthy of architectural consideration. Examples were to be found in the Midlands and the North, and the mischief they had done was incalculable.

The tendency of contemporary architects was to reintegrate architecture with contemporary civilization—with the actual life of our time—and that was being done by reverting to first principles. The best contemporary work in Europe was really aiming at securing a genuine and sympathetic unity in the work.

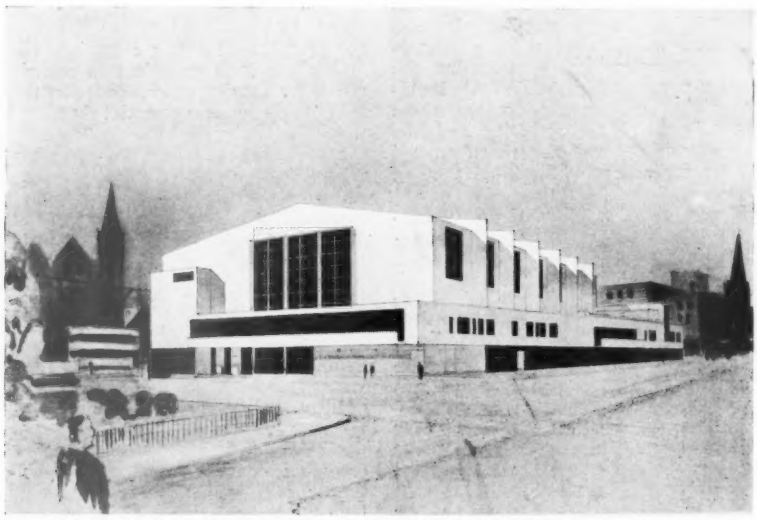
I.A.A.S.

The tenth anniversay dinner of the Incorporated Association of Architects and Surveyors is to be held at the Dorchester Hotel, Park Lane, W., on November 22, at 7 p.m.

HOUSING AND TOWN- AND COUNTRY-PLANNING

The Minister of Health has republished, as a separate pamphlet, that part of the Annual Report of the Ministry for 1934–35 which deals with housing and town- and country-planning.

The first part of the pamphlet outlines present housing policy. It gives details of the progress made with the slum clearance



The H. W. Williams Prize for the promotion of architectural design in concrete, 1935. Subject: An Ice Rink for Liverpool. Winner: R. E. E. Beswick, fourth year diploma student, Liverpool School of Architecture. The competition is open to all members of the Liverpool Society of Architects and its allied branches.

campaign, contains a summary of the main features of the Housing (Overcrowding) Act, 1935, and deals with the provision of new houses generally.

The second part of the pamphlet deals, among other things, with the planning of the South Downs and the preservation of a Green Belt round London. There is also a record of some interesting decisions on appeals made to the Minister by intending developers.

The pamphlet, which is entitled *Housing and Town- and Country-Planning*, is published by H.M. Stationery Office, price 1s.

HOUSING COMMITTEE

Sir Kingsley Wood, the Minister of Health, has appointed a Central Housing Advisory Committee under the new Housing Act. He will be the chairman and there are 27 members.

In a statement issued by the Ministry of Health it is pointed out that the Committee will from time to time advise the Minister and local House Management Commissioners on specific questions which may be referred to it, and will also be available for consultation by the Minister on any questions connected with housing administration generally. The Committee is empowered also to make representations to the Minister on any question of general concern in relation to housing. It will thus be able to contribute collectively a wide intimacy with the conditions and needs of housing work.

The following are members of the Committee: Lord Balfour of Burleigh, Sir Harold Bellman, M.B.E., Mr. G. M. Burt, the Earl of Crawford and Balcarres, K.T., Mrs. M. M. Dollar, J.P., the Earl of Dudley, M.C., D.L., Sir Francis Fremantle, M.P., O.B.E., M.A., M.D., etc., Miss Megan Lloyd George, M.P., Mr. George Hicks, M.P., Alderman A. L. Hobhouse, J.P., Mr. L. H. Keay, O.B.E., F.R.I.B.A., the Countess of Limerick, C.B.E., Mr. O. Ling, J.P., Alderman Sir Miles Mitchell, J.P., Mr. C. J. Newman, Alderman E. G. Rowlinson, J.P., Major Sir Isidore Salmon, M.P., C.B.E., J.P., D.L., the Rev. E. St. G. Schomberg, Mr. L. Silkin, L.C.C., Mr. J. A. Simpson, O.B.E., LL.B., Sir Raymond Unwin, PP.R.I.B.A., Mr. J. A. F. Watson, Sir Seymour Williams, K.B.E., Mr. J. Greenwood Wilson, M.D., M.R.C.P., D.P.H., the Bishop of Winchester, D.D.

The vice-chairman will be the Parliamentary Secretary to the Minister of Health. The Secretary to the Committee is Mr. H. H. George, M.C., to whom all communications should be addressed at the Ministry of Health, Whitehall, S.W.1.

NEW SEVERN BRIDGE

At a meeting of the Gloucestershire County Council, held on November 18, it was decided to promote a Bill in Parliament in conjunction with Monmouthshire for the building of a new Severn bridge at or near English Stones.

ARCHITECTS' WILLS

Mr. Thomas Holliday Richardson, retired architect, of Malton, Yorks., left £26,132 (net personalty, £24,344).

Sir Walter Tapper, K.C.V.O., R.A., of Dean's Yard, Westminster, S.W., left £29,813 (net personalty £27,356).

NEW FLATS AT CHALK FARM

Kent House—two blocks of flats in Ferdinand Street, Chalk Farm—is to be opened by Brigadier-General Sir Wyndam Deedes, C.M.G., on Monday, December 2, at 3 p.m. The architects for the scheme are Messrs. Connell, Ward and Lucas.

ANNOUNCEMENT

Messrs. Bertram, Bertram and Rice, formerly of 28 Holywell Street, Oxford, are now practising at 36 St. Giles', where all communications should be addressed.

COMPETITION NEWS

BANNED COMPETITION

The following notice has been issued by the R.I.B.A.: "The Competitions Committee desires to call the attention of members to the fact that the conditions of the proposed limited competition for design of houses, Battle, R.D.C., are not in accordance with the Regulations of the R.I.B.A. The Competitions Committee is in negotiation with the promoters in the hope of securing an amendment. In the meantime members should not take part in the competition."

PROPOSED HOSPITAL, HARROW

The provision of a hospital, with accommodation for 130 beds, was discussed at the last meeting of the Harrow U.D.C. It was recommended by the Public Health Committee that the design of the building should be obtained by the promotion of an open competition under the regulations of the R.I.B.A.

Competitions Open

November 30.—Sending-in Day. Public baths and public health offices for the Coatbridge Town Council. (Open to architects resident and practising in Scotland for a period of at least two years.) Assessor: Wm. B. White, F.R.I.B.A. Premiums: £250, £150 and £75. Designs to be sent to the Burgh Surveyor, Coatbridge, not later than November 30.

November 30.—Sending-in Day. Public library for the Colchester Corporation. (Open to members of the Essex, Cambridgeshire and Hertfordshire Society of Architects.) Assessor: Professor A. E. Richardson, F.S.A., F.R.I.B.A. Premiums: £150, £125 and £75. Designs to be sent to R. L. Hiscott, Town Clerk, Town Hall, Colchester, not later than November 30.

December 31.—Sending-in Day. Proposed town hall, Bury, for the Corporation of Bury. Assessor: J. Hubert Worthington, O.B.E., M.A., F.R.I.B.A. Premiums: £500, £300 and £150. Conditions, etc., are obtainable from Richard Moore, Town Clerk, Municipal Offices, Bank Street, Bury. (Deposit £2.)

January 24.—Sending-in Day. Proposed offices for the Harrow U.D.C. (Open to architects of British nationality.) Assessors: C. H. James, F.R.I.B.A., and S. Rowland Pierce, A.R.I.B.A. Premiums: £350, £250 and £150 Conditions, etc., may be obtained on application to Mr. Vernon Younger, Clerk of the Council, Council Offices, Stanmore, Middlesex. (Deposit £2 2s.) The latest date for submission of designs is January 24.

January 31.—Sending-in Day. Proposed Parliament House, Salisbury, Southern Rhodesia, for the Government of Southern Rhodesia. (Open to architects of British citizenship.) Assessor: James R. Adamson, F.R.I.B.A. Premiums: £500, £300, £200 and £100. Conditions, etc., obtainable from the High Commissioner for Southern Rhodesia, Crown House, Aldwych, W.C.2. (Deposit £2 2s.) The designs must be sent to the Assessor at 19 Silverwell Street, Bolton, not later than January 31.

R.I.B.A.

HOUSING

Following are some extracts from a paper entitled "Housing, and the Redevelopment of Central Areas," read by Mr. L. H. Keay, O.B.E., at the R.I.B.A., on Monday last.

The statutory obligation to make provision for housing the lower-paid workers of this country has generally been met by the local authorities by the building of single-family houses in suburban areas. It is evident that this method of rehousing those displaced in connection with slum clearance schemes was contemplated under the Housing Act of 1930, for Circular 1138, issued by the Ministry of Health, refers to a higher subsidy being available where "in *exceptional* cases it is shown necessary to rehouse on the acquired sites." The Housing Act, which received the Royal Assent in August of this year, provides the machinery necessary for dealing with another phase of housing, namely, the prevention and abatement of overcrowding.

It is because I know that I have been referred to as "essentially a local authority man," and feel that a satisfactory solution of this phase of the housing problem is not to be found in the further development of suburban estates, that I propose to deal tonight mainly with the urgent necessity for the redevelopment of the overcrowded and slum areas—work which is contemplated under the new Act and which I believe can be better dealt with by the local authorities, assisted by housing associations where co-operative action is possible.

I need only briefly recall some of the conditions which exist in the centre of most large towns today. Behind the main thoroughfares are to be found narrow streets, unsuited to modern transport, and often only used as playgrounds by the children of the district; badly planned houses, many erected before the introduction of building bye-laws; a lack of air space; a general low standard of amenity; and overcrowding. The dwellings are overcrowded, not always because alternative accommodation on the newly-developed estates of the authority has been unobtainable, but because the tenants of the older houses, for good reasons of their own, have been unwilling or unable to leave the business areas of the town.

The most casual survey will also disclose the wasteful use of land and buildings; the unsatisfactory street planning; and the almost entire lack of open space and those amenities we now deem essential. Here and there houses which were unsuitable to live in have been adapted for use as small business premises, but which are equally unsuitable to work in. The properties usually belong to a number of small speculators, and for that reason a comprehensive redevelopment scheme by the several owners is unlikely. The only buildings worthy of preservation are those owned by the local authority and the churches, which have often been erected by the contributions of the inhabitants of the locality.

Evidence is not wanting of the unsatisfactory conditions which result by rebuilding on small isolated sites, and a repetition of individual action by small owners cannot be contemplated. It is largely because this was permitted towards the end of the last century that the undesirable planning of the smaller roads has remained and presents a problem to be dealt with today.

When the information which will be obtained from the housing surveys to be carried out under the new Act by local authorities is available, it will be found that adjacent to those areas which are now the subject of action under the slum clearance proposals there are districts in which overcrowding is considerable, and in which properties are beyond reconditioning. There is, therefore, every reason to anticipate that the local authorities will be compelled to increase their building programmes in order that suitable accommodation may be found for those displaced from the unhealthy and overcrowded dwellings in these districts.

Garden Suburbs or Satellite Towns

There is still a school of thought, led by some housing enthusiasts, which urges that the slums should be demolished and the displaced tenants housed in garden suburbs or satellite towns. It is to be assumed that similar action will be advocated for the rehousing of those occupying the overcrowded houses discovered in such districts by the housing surveys, thus leaving large areas in the very hearts of our towns with the appearance of devastated areas on a war front. It is difficult to believe that such a suggestion is made seriously. The intention of Parliament is quite clear, for the memorandum recently issued to local authorities in connection with the Act of 1935 states that "It is recognized that a solution cannot be found in new building, however intensive, on sites more or less removed from the areas affected," and that "the only way in which overcrowding in such areas can be materially alleviated is by the provision within the areas of suitable accommodation for as many persons as the sites which are, or can be made, available will allow if adequately developed in accordance with modern standards."

The importance of redevelopment, therefore, cannot be too strongly stressed. Conditions similar to those existing in our towns are to be found in cities abroad. In Boston and in Berlin—where we are told that "there are areas in which nothing but absolute clearance can be of any use"—and in Madrid and in Oslo—where a responsible official deplores that "Strange to say, our towns preserve in their interiors, often for centuries, such cancers which all would rejoice to see removed."

For years the necessity of re-planning the built-up areas of our towns has been urged, and the opportunity now arises for putting theory into practice: "where"—to quote the new Act—"certain conditions obtain, and where it is expedient to make provision for housing accommodation for the working classes, it is essential that any area should be redeveloped as a whole." In these schemes, to be carried out after the closest co-operation of the bodies responsible for housing and town planning, it should be possible to pay attention to both architectural planning as well as to transport necessity.

Since the war the attack on unsatisfactory housing conditions has been made step by step. First the building of houses to overcome the shortage resulting from unproductive and troublous years, and then the clearance of the slums by the replacement of the unsatisfactory houses. Finally, under the new Act, an attack is to be made on that condition which produces slums—overcrowding—and the reconditioning of those properties which are capable of being rendered satisfactory for a further period of years. It is because I am confident that it is possible to replace the slums and to rehouse the overcrowded families within the districts they at present occupy by the process of redevelopment that I suggest there need be no anxiety on the part of those who associate another housing drive by the local authorities with a further absorption of agricultural land. The country can still be saved by the redevelopment of our towns so long as the private speculator is curbed in his zeal for destroying country estates to provide "eligible building plots" for "Jerrybethan" villas. The advantages of redevelopment, both to the tenant and the community, as opposed to removal to a suburban estate are readily apparent. The tenant is saved the cost of transport, which is really an added rent charge, and avoids the serious waste of time which travelling to and from some outlying district involves, and the community avoids additional transport difficulties in the already congested traffic roads. Light and air, and ample space for recreation, can be provided in the redeveloped area, and existing amenity buildings, services, etc., will continue in use and the duplication of these services will be avoided.

The old controversy of the cottage versus the flat may be raised again, but in the circumstances I have just described it is my unwavering conviction that the building of flats in the central areas of our large towns and cities is essential to the solution of the problem, despite all that has been said and written against them. The benefits of the single-family cottage are generally admitted, but is it less possible to raise an A1 community in a properly planned township of flats than in a garden suburb? Is there any doubt that the rising generation in the great continental cities of Europe will not be as fit physically and morally as the children of Wythenshawe and Dagenham and Norris Green? It has been suggested that in Germany the single-family house has replaced the flat in recent development schemes. German authorities themselves indicate that the change is due to economic reasons rather than to a change in policy.

For the past ten years it has been my privilege to occupy the position of Director

of Housing of the City of Liverpool, where for over half a century it has been the policy to rehouse a large proportion of the tenants displaced by slum clearance operations on the site of their previous dwellings. At the present time the housing estate comprises 25,688 single-family cottages on the outskirts of the city, and 6,735 flats in the central areas. The present building programme contemplates the erection of a further 5,000 cottages and 10,692 flats, and this will be greatly increased by reason of the added housing responsibility placed upon the authority under the new Housing Act. I propose to show in a few moments examples of both cottages and flats, and also to give some details of a large redevelopment scheme. As this will involve the erection of flats it may be of interest if I make brief reference to some of the general principles which are applied in the lay-out and design of these buildings.

Site Planning

Shape and contours must naturally influence the lay-out of any site, but the best result is admittedly obtained by planning blocks in parallel running north and south so that the flats have aspects to the east and west. Enclosed playgrounds are avoided and the spaces set apart as gardens and for recreational purposes are concentrated, thus providing the maximum of open space. When it is necessary to erect an isolated block of flats on a small site the block is planned as a unit of an ultimate development embracing the area bounded by the adjacent traffic roads. A minimum angle of light of 30 degrees is allowed between blocks.

It is of interest to note how, with the same density of development of 60 families to the acre, the percentage of the site built upon decreases with the higher building. In a scheme of flats of normal accommodation five storeys in height 76 per cent. of the site is unbuilt upon. This increases to 88 per cent. in the case of 10 storeys, and to 92 per cent. in the case of 15 storeys, whilst the distances between the blocks arranged in parallel would be 90, 210 and 330 ft. respectively. These figures are given not with the suggestion that 15-storey flats will be erected but to show the advantages of building upwards.

Number of Floors

The number of floors in any block is dependent upon the provision or otherwise of lifts. Without this means of vertical transport three floors are the ideal, and five floors the limit. Above that height the provision of a lift is essential, and it may yet be necessary, in exceptional cases, to build to ten storeys.

Construction

The normal construction is brick walls with reinforced concrete floors and supporting beams and columns. Alternative methods of construction will be considered in the event of any shortage in materials or of an increase in the number of floors over the five usually erected. Windows are of steel or wood or a combination of steel and wood. Floors of asphalt or wood except in sculleries, bathrooms and entrance lobbies, where quarry tiles are laid. Doors

L. H. Keay, Director of Housing, Liverpool, author of the paper on "Housing and the Redevelopment of Central Areas," read at a meeting of the R.I.B.A. on Monday last.

in the more recent schemes are flush-panelled and hung to steel frames. Skirtings are of tiles or cement and picture rails are omitted. Roofs are pitched or partly flat and pitched and constructed of wood, or wood and steel, and covered with felt and tiles. The flat roofs are covered with Ruberoid laid on insulating board and steel decking. Where parapets are constructed the rainwater is taken to the back of the buildings. Self-contained flats are erected on each floor, but the possibility of constructing a series of maisonettes may have to be considered if buildings of more than five storeys are erected in order to reduce the number of stopping places for lifts.

Method of Access

Both enclosed staircases serving two flats on each floor, and access balconies served by open staircases, are adopted. The latter method has many advantages and is used in most instances.

Planning and Equipment

The flats vary in size from the single bed-living room type to those with four bedrooms, and the following percentages of the various types are usual: Bed-living room type, 5 per cent.; one-bedroom, 20 per cent.; two-bedroom, 30 per cent.; three bedroom, 35 per cent.; and four-bedroom, 10 per cent. Each flat is provided with a bathroom, and hot water is supplied from the back boiler in the living room. This to some extent indicates the planning, it being desirable to group the scullery, bathroom and living room together in order to effect economy in plumbing. In only very few instances are bedrooms entered from the living room. Private balconies from the living rooms are now general, and are so planned that they do not obscure light from the rooms below. A gas copper is fixed in the small kitchenette, and a gas point provided for a boiling ring. Electric light is used for illumination and a limited number of points are provided for irons, cleaners, etc.

A Local Authority Man

I have previously mentioned the reference to myself as a local authority man. Whatever that may mean, I hope that it will not be thought that I do not fully appreciate the efficiently designed and well-managed schemes of the various public utility societies and housing associations, so much of which is evident in London, or what has been done by great commercial undertakings, of which the developments at Bournville and Port Sunlight are classic examples. In the task before us I am confident that a greater measure of success will be attained if both voluntary associations and local authorities work together in the closest co-operation. For this reason I welcome those clauses in the new Housing Act which will facilitate this co-operation and assist towards the better management of our great housing undertakings. I also welcome the reference in the memorandum recently issued from the Ministry of Health urging the necessity of skilful and sympathetic management, for without this the full benefit of the added amenities which we as architects provide will be lost.

I conclude by suggesting some points for your further consideration:—

The necessary powers have now been provided giving the opportunity of dealing simultaneously with every phase of the housing problem. Foremost in importance are those powers by which re-development schemes can be carried out under the Housing Act, 1935. Dare we neglect to use them to their full extent?

In the work to be undertaken during the next ten or twenty years should we allow ourselves to be bound by traditional methods either in design or construction, or even in the methods of management?

Leaving the so-called controversies of the flat versus the cottage and traditional versus modern design to those ethereal experts at Langham Place, our anxiety

should be to see that the architectural work which will be involved is carried out by those who owe allegiance to that body which has learned the benefits of re-housing by its removal to Portland Place. We must not be timid about the size of the schemes undertaken. Let us take up the call of "Save the countryside," and by great schemes of redevelopment effect economies in health and other services, and establish in our great towns those conditions which we as architects know to be possible, and which those engaged in social work know will make for the greater happiness of our people.

●

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the Institute :

All Hallows Church, Lombard Street.—It was agreed to support the memorandum prepared by the Conference of representatives of learned Societies, presided over by Viscount Esher, protesting against the proposed destruction of All Hallows Church, Lombard Street.

The Use of Structural Steel in Building.—Mr. W. Goodesmith (A.) and Mr. P. J. Waldram (L.) were appointed to represent the R.I.B.A. on the British Standards Institution Technical Committee on the Use of Structural Steel in Building, in addition to Mr. S. Pointon Taylor (F.)

The Standardization of Linoleum.—Mr. O. P. Bernard (L.) was appointed to represent the R.I.B.A. at a meeting called by the British Standards Institution to consider the Standardisation of Linoleum and on Technical Committee B/37, should it be decided to proceed with the preparation of a British Standard Specification.

R.I.B.A. Architecture Medals : Royal Institute of the Architects of Western Australia.—It was reported that the jury appointed to make the award of the R.I.B.A. Architecture Medal for the area of the Royal Institute of the Architects of Western Australia for the three years ending December 31, 1934, had made their award in favour of Newspaper House, St. George's Terrace, Perth, designed by Messrs. Hobbs, Forbes and Partners. The award was formally approved by the Council.

SOCIETIES AND INSTITUTIONS

TOWN PLANNING INSTITUTE

Mr. Leslie Roseveare, in his presidential address to the Town Planning Institute in London last week, said it was now accepted that, apart from congestion and traffic problems, a city could become too large to be administered economically or efficiently. Was it not, then, a tragedy that they still saw, even in some districts with town-planning powers in operation, appalling development? Where local cross-pulling or inertia was in danger of allowing undesirable growth, stronger power could be given or exercised by the county council, which could afford the appointment of the necessary planning officers to deal with these matters, the lack of such personnel at present often being the reason for the inability of small districts to supervise their areas adequately. The ideal development of Letchworth and Welwyn was unlikely to be multiplied under company ægis, but there would seem to be no reason why enlightened authorities should not continue a like work with the nucleus of the village or small township, or, as Manchester had done at Wythenshawe, by creating a satellite town.

It would be very helpful to future proper planning and useful to authorities if something in the nature of an unwritten law were evolved that in any town, say, of over 120,000 population, extensions would be granted only when a sufficient area for a green belt was provided, if practicable, and the extension definitely planned on satellite town lines.

LIVERPOOL ARCHITECTURAL SOCIETY

"Where is the modern movement going?" The question was answered by Mr. John Gloag, in a paper which he read to the Liverpool Architectural Society last week, and in which he criticized with considerable candour Continental modernism and functionalism, and "the attempts which are being made to force an alien logic upon the English family about the way it should live." Lieut.-Colonel E. Gee, president of the Society, was in the chair.

Mr. Gloag said that every time he considered the question of modernism in architecture he became both humble and uncomfortable. He was uncomfortable because the implications of the modern movement did not suit his "stuffy, pre-war ideas," and he began to think that his heresy in doubting the flaming rectitude of the modernists, and particularly those who still insisted on talking about functionalism, was not the fine, clear light of honest doubt—that beacon of all true heretics—but merely the sort of mild mildew that, ten years ago, he would have called the first sign of middle-age. But with a fortieth birthday looming up in the near future, one was less inclined to the mildew theory. Mellow was the word that comforted the middle-aged. The old gentlemen who said that functionalism was soulless and that its manifestations were ridiculous and ugly and ought to be stopped, did not really examine its implications. They did not recognize that the rediscovery of common sense as a basis for design had become a cramping faith. Because they had spent their youth against a background of richly varied congestions in architectural and industrial design, they did not perceive that this "utilitarian stuff," this functionalism, was the produce of an unacknowledged revolution. It was not, as some of its unimaginative practitioners suggested, the only way of thinking : but it was an easy and obvious way of thinking, and it saved uninspired and unimaginative people a lot of hard work.

Mr. Gloag illustrated the progress of this revolution by indicating changing designs in letter type, showing how romantic ornamental forms have been rationalized during the past generation or so.

Mr. Gloag continued :

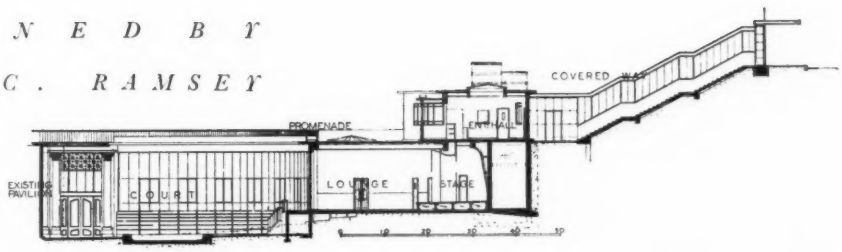
"Spirited attempts are being made to force an alien logic upon the English family about the way it should live. The architecture that Germany has abandoned in favour of romantic reaction is being planted here and there, with about as much harmony as a man achieves who attends a conventional wedding in running shorts and a sweater on a cold day in November. It's all very clean and white and nice and functional in an elementary way—*at first*. Photograph this architecture with the sun shining ; but do it the ill-turn of photographing it a year later, after an English climate has 'weathered' it ; and interview the people whose lives have been forced into a Continental mould for a season and see how they like it in dear, foggy, damp, windy England. Unless the building has been refreshed with much paint and external colour wash it will not be looking its best. Unless the inhabitants are of the incurably uncomfortable sort, who like dashing breathlessly from place to place, and merely use a home as a sleeping place or as a social centre filled with clamorous hospitality at all times with an empty cocktail glass on every mantelshelf, so to speak (only, of course, ultra-modernism won't stand for mantelshelves)—unless the inhabitants organize life like that, they will admit that the Continental model is a bit too bleakly logical for English weather and the English character.

"I suggest in all humbleness that the architecture which is acceptable in Central Europe and in that vast gloomy plain called Russia is inappropriate and psychologically unfunctional in England. The logic of the functionalist would compel him to cover the world with those vast hives of glass that Olaf Stapledon has pictured so horribly in *First and Last Men*. Olaf Stapledon imagined that such architecture would come in a world state. Even in a world state, that dear, dead, pre-war Wellsian dream, which the lunacy of ardent nationalism is gradually crushing into little pieces, even in the world state that may come three or four centuries hence, it is inconceivable that human beings would be prepared to standardise everything ; to destroy all local variations of architectural and artistic talent which have in the past diversified the works of man and given them in every land on earth an individual nobility. Nationalism that keeps nations greedy and arrogant is disastrous and depressing ; nationalism that preserves the individual character of a nation is contributing something to the whole of civilisation. The disciplined ant-hill is, perhaps, an expression of the peculiar genius of the German and Russian peoples ; the gay towers of New York reflect the commercial adventurousness, the young vital spirit of a country that says 'Let's try it—it's never been done before' ; but here in England we understand something which few other countries understand quite so well—we understand how to make homes. Even our great royal palaces, like Hampton Court, are homes on a large scale. In the last century our home-making got too pretentious, too purse-proud, too complicated. The Modern Movement in design—the pioneers of functionalism—have cleaned up that congestion. They have tidied up a lot of rubbish, and a first class sanitary squad they have been. But don't imagine that the best of them, the really able designers, will be content with the Modern Movement as it stands at the moment."

ADDITIONS, WINTER GARDENS, MARGATE

DESIGNED BY

STANLEY C. RAMSEY



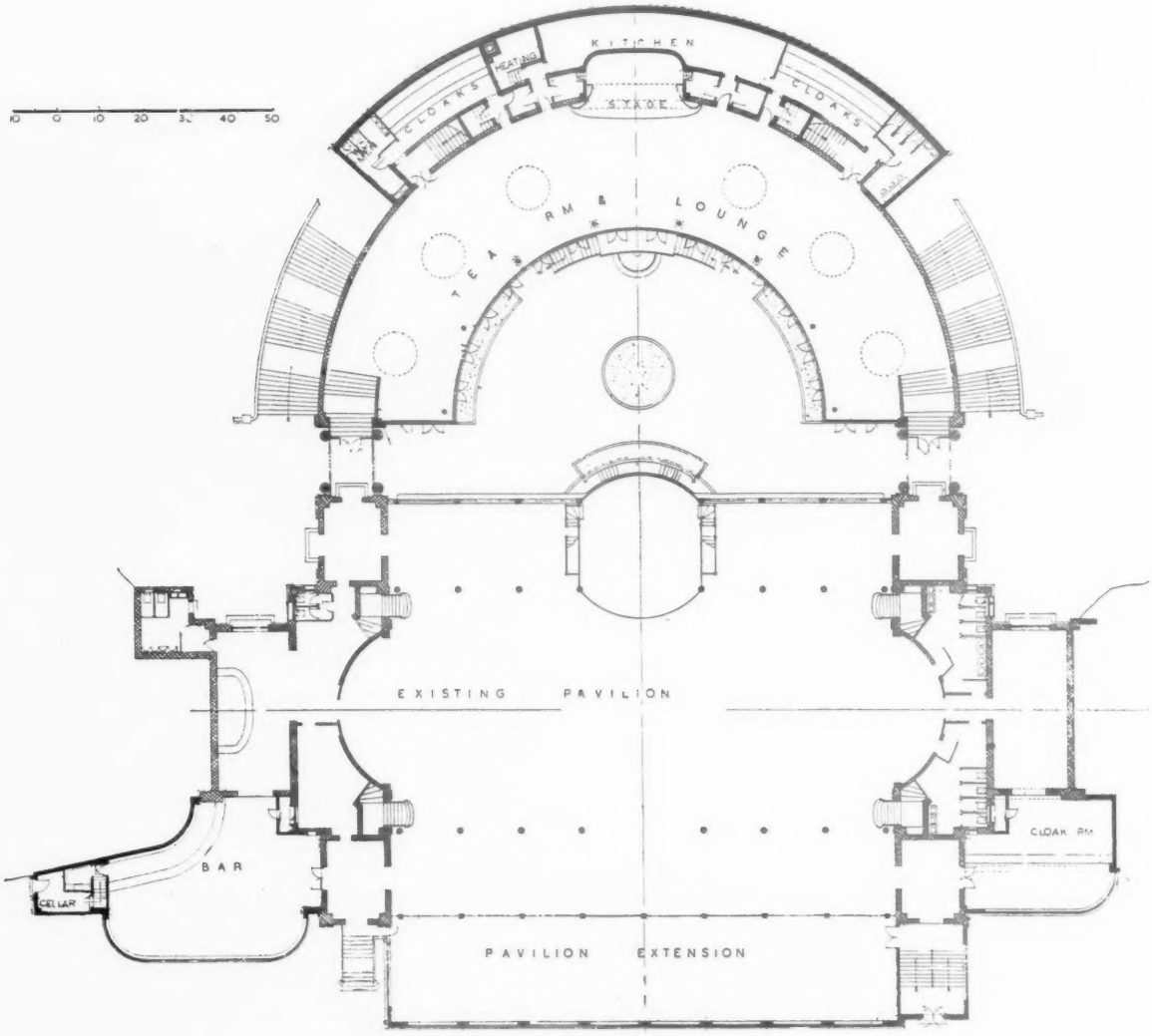
SECTION

PROBLEM.—*The work consists of the provision of a new covered approach, new entrance hall, cloakrooms, and kitchen in connection with a tea lounge on the landward side of the existing winter gardens; and of an extension to the pavilion, covered approach and minor alterations on the sea front.*

PLAN.—*The plan shape of the tea lounge is that of the rarely used open-air theatre from which it was converted.*

Above is the covered approach from the roadway to the high level entrance hall and stairways behind the tea lounge; right, a general view of the Winter Gardens.

ADDITIONS AND ALTERATIONS AT THE



DESIGNED BY

STANLEY C. RAMSEY

CONSTRUCTION.—*The new work is carried out in reinforced concrete, with slab partitions internally. Windows are of bronze on the seaward side, and steel elsewhere. Grilles and external balustrades are of wrot-iron.*

EXTERNAL FINISH.—*Patent concrete paint, finished cream-white, with windows and external metalwork painted bronze. Metalwork to approach stairway painted jade green, and stair margins in biancola.*

Left, the new extension to the pavilion, overlooking the sea.

WINTER GARDENS, MARGATE

INTERNAL FINISH.—*The entrance hall floor is of terrazzo, and walls and ceilings of distempered plaster. Pay-boxes, counter and doors are of Burma mahogany, wax-polished. Grilles are in bronze.*

The tea lounge dado, stage-front and doors are of Indian silver greywood with ebonized skirting and capping. Walls above are of acoustic plaster, distempered, and the ceiling is of hard plaster. The floor is of Tasmanian oak.

The main stairway, pavilion extension, bar and cloak-room are floored in rubber. New bar counter is of teak, and is fitted with a glazed folding shutter.

SERVICES.—*Heating throughout is by hot-water radiators, and the tea lounge, and service rooms adjoining, are mechanically ventilated.*

COST.—*The contract price for the whole alterations was £24,942.*

The photographs show: a detail of the new front to the tea lounge: the high level entrance hall from the covered approach; and an internal view of the tea lounge.

For list of general and sub-contractors, see page 788.

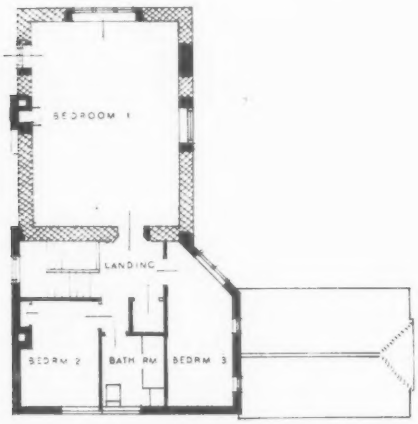
ALTERATIONS AND ADDITIONS: HOUSE AT HOLMBURY

GENERAL PROBLEM.—*The work consisted of alterations and extensions to an existing stable, whilst retaining the general character of the building.*

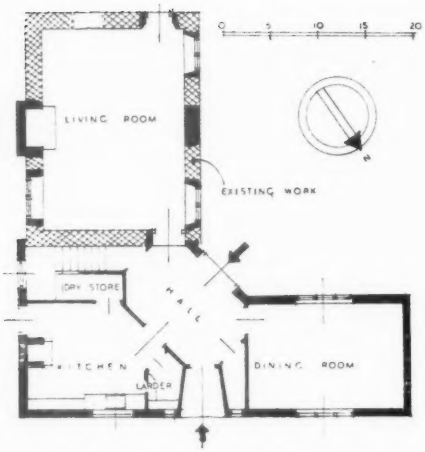
PLAN.—*The general lay-out was determined by the aspect of the existing building, a north outlook being desired for the kitchen, and one, roughly, east and west for the new dining-room.*

The photographs show: top, a general view from the west, the wing on the right was originally the old stable; above, the south-east elevation; right, the entrance hall.

ST. MARY, SURREY: DESIGNED BY H. VICARS LOBB



FIRST FLOOR PLAN



GROUND FLOOR PLAN

SECTION

CONSTRUCTION.—*The existing building is of stone with a tiled roof, and the extensions have 12 in. cavity external brick walls, 4½ in. internal partitions, tiled roofs, and deal windows in oak frames.*

INTERNAL FINISH.—*Plaster walls, finished with felt float, and boarded floors, painted in bedrooms. Hall and dining-room floors are of plywood squares. Bathroom and kitchen are tiled to a height of 4 ft. 6 ins. The stairs are painted cherry red with an oak balustrade.*

The photographs show : above, the living room ; below, the principal bedroom. Both these rooms are formed in the reconstructed stable wing.

For list of general and sub-contractors, see page 788.

LETTERS FROM READERS

GEOFFREY C. WILSON, F.R.I.B.A.
B. S. TOWNROE, HON. A.R.I.B.A. (Mayor of Hampstead)
H. ALLBERRY, A.R.I.B.A. (President of the Royal Institute of the Architects of Ireland)
"KINGSTON"
W. E. J. BUDGEN

Library of Planned Information

SIR,—Your outline for a filing system for the very valuable Library of Planned Information, published in last week's issue of the JOURNAL, suggests that you would like comments from subscribers.

The following method, which has been adopted in this office, may, therefore, be of some small interest to you :—

Each week the fresh information sheets are filed numerically in the current folder (folders are lettered A, B, C, etc.) and at the same time the sheet is entered in a separate alphabetically indexed book and cross-indexed for quick and easy reference under as many alphabetical headings as the particular sheet requires.

No special claim is made for this system as it is neither final nor perfect, but has been arrived at for the following reasons : It is simple, takes little time, and so far has proved foolproof. As the number of Sheets can never be completed, it has the merit of being flexible and can be easily changed when something better is thought of. The fullest advantage is taken of the consecutive numbering provided.

No problem arises of deciding where to put Sheets which come under two, three or more subdivisions. It solves with ease the question of putting sheets back in their right places in a busy office, and its capacity to take new Sheets is unlimited.

GEOFFREY C. WILSON

Town Planning

SIR,—In your first paragraph under "Notes and Topics" on November 7, you were good enough to invite me to enlarge upon my observations at a meeting convened by the Hampstead Heath and Old Hampstead Protection Society.

My authority for the foreign origin of Town Planning was Dr. Thomas Adam, who stated in his recent book : "The example of Germany originated the development of zoning in the United States in the beginning of this century as it did also in England." As "Astragal" is well aware, modern Town Planning dates from the Prussian Town Planning Act of 1875, whereas the first English Act was passed in 1909.

With regard to your other comments, may I point out the two past Presidents of the Royal Institute of British Architects, Sir Reginald Blomfield and Sir Raymond Unwin, supported the resolution.

There is much to be said for the view expressed by Sir Raymond Unwin that a larger central organization for London than the London County Council is required in order to control regional planning in Greater London with, of course, decentralization to the constituent bodies. No doubt we shall hear about this possibility in the speech to The Architecture Club by Mr. Herbert Morrison on November 22.

B. S. TOWNROE

[*As Mr. Townroe says, Town Planning was the subject of Legislation on the continent earlier than in this country, but I do not think that necessarily makes it an alien idea. Even what we now know as "zoning" was in the minds of English architects in 1820, as an interesting plan of that date in the R.I.B.A. Library by J. B. Papworth shows.*—ASTRAGAL.]

Dangerous Simplicity

SIR,—The Editorial "Dangerous Simplicity" in the issue of your JOURNAL for October 31 last, was a judicial and interesting comment on the broadcast discussion between Sir Ernest Simon and Mr. Geoffrey Boumphrey, as to the relative values of flats and cottages.

The question whether housing developments should take the form of building suburban and extra-suburban cottages or urban flats is one which can be approached from many angles and the propriety of one or the other system, as a solution of the present and future housing problems, seems likely to remain so keen a subject of dispute that patients may die while the sociological and architectural doctors differ.

Accordingly, or at least so it seems to me, the arguments submitted and the facts presented in a case of such extreme perplexity should be most carefully weighed. In the course of your article under reference you state—"So desperate has the scramble for cottage space become, so long the distances between home and work, and so many the travellers, that one-tenth of London's wage-earners spend their energies moving the rest about."

Taken literally this means that one out of ten of London's workers is engaged solely in the task of taking the remaining nine of his colleagues to and from their work, and appears—unless I am utterly mistaken—to take no account of the energy and time the one-tenth expend in inter-urban communication and the thousand and one other journeys made from point to point during the day and night, in the Metropolis, by people on business and on pleasure bent.

H. ALLBERRY

New Aerodromes

SIR,—The proposed extensions of the Royal Air Force will necessitate the execution of a considerable amount of building work.

It has come to my notice that the greater part, if not all, of the necessary plans will be executed by professional assistants who will be temporarily engaged by the Air Ministry for this purpose.

I desire to bring to your notice the fact that quantity surveyors' and architects' offices throughout the country, particularly in the provinces, are quiet, and it would be much appreciated and, I think, fairer if at least a portion of the work was let out to private practitioners.

To employ a large number of assistants to execute the work is, I think, hardly "playing the game" to the man in private practice, who, after all, has his rates and taxes to pay.

I may add in passing that I suggest the same course as is adopted by His Majesty's Office of Works.

"KINGSTON"

The Structural Engineer

SIR,—Architects frequently complain that their share in the construction of new buildings is not recognized by the press and public. It is interesting therefore to note that in your Cinema issue no mention is made of the profession which has made the modern cinema possible—that of the structural engineer.

Mr. Bernstein has not apparently heard of him. He is not even reported in his usual humble place in your list of contractors.

Mr. Alister MacDonald refers, somewhat apologetically, to the solution of an awkward foundation problem, again without mention of his engineer. Indeed, he says that the ingenuity shown which made a news cinema possible in this position, has nothing to do with the *design* of news cinemas. What is "design"?

W. E. J. BUDGEN

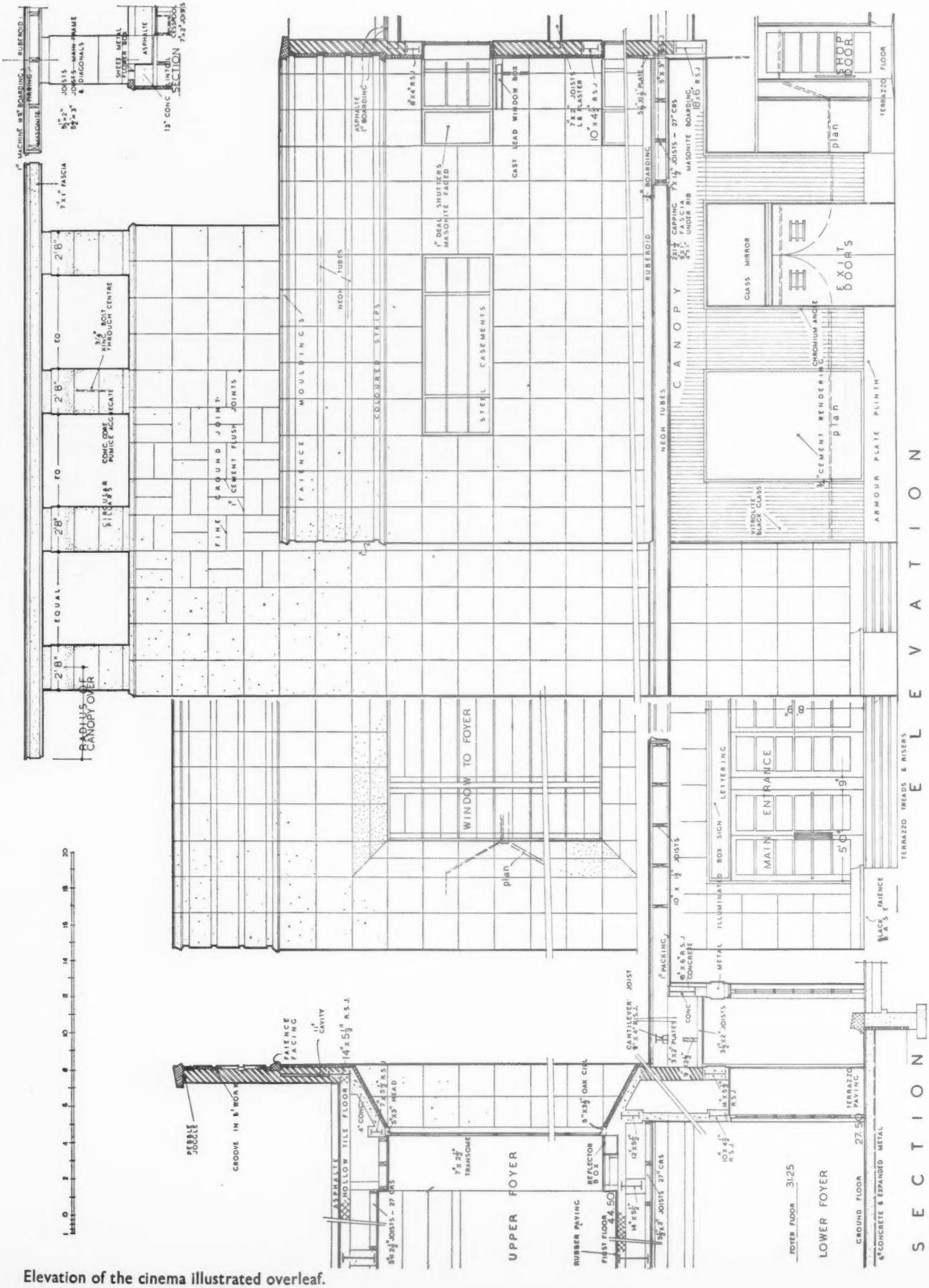
WORKING DETAILS : 359

CINEMA FAÇADE • ODEON CINEMA, WESTON-SUPER-MARE • T. CECIL HOWITT

The elevation of the cinema illustrated above is faced in varying tones of stone-coloured faience with wide cement joints. The lines of the parapets are in green faience with green slating over; shop surrounds are in black glass and the woodwork is enamelled jade green. Details of the elevation are shown overleaf.

WORKING DETAILS : 360

CINEMA FAÇADE • ODEON CINEMA, WESTON-SUPER-MARE • T. CECIL HOWITT



Elevation of the cinema illustrated overleaf.

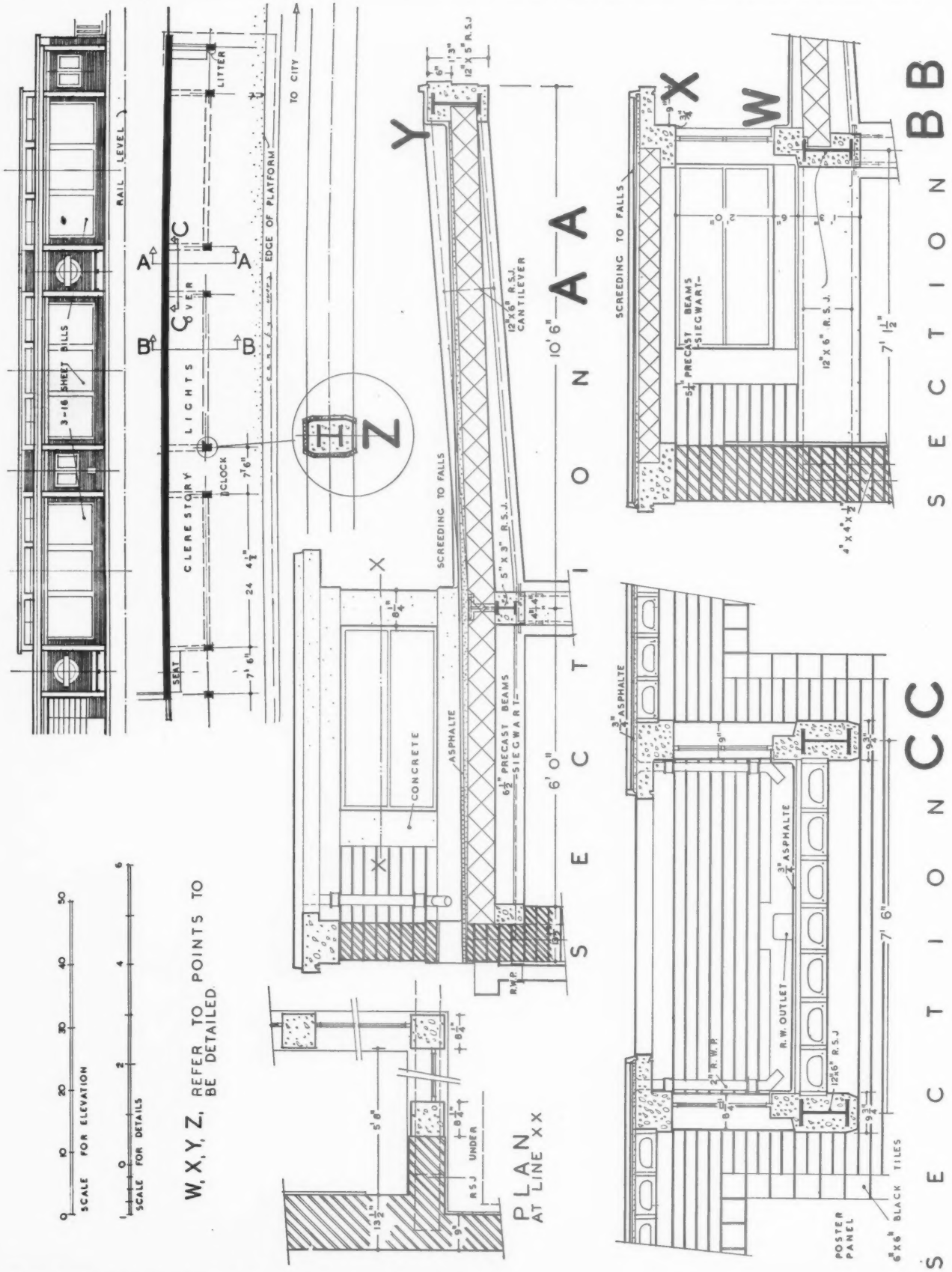
WORKING DETAILS : 361

CANOPY ● SOUTH HARROW UNDERGROUND STATION ● S. A. HEAPS; ADAMS, HOLDEN AND PEARSON, CONSULTANTS

The canopy illustrated above is constructed on 12 in. by 6 in. R.S.J's continuous over the supporting columns and tailed down by the back wall of the clerestory, with additional vertical ties of 4 in. by 4 in. angles in tension. As shown in the sections overleaf, the infilling is by precast beams finished in asphalt.

WORKING DETAILS : 362

CANOPY ● SOUTH HARROW UNDERGROUND STATION ● S. A. HEAPS; ADAMS, HOLDEN AND PEARSON, CONSULTANTS



Plan, elevations and sections of the canopy illustrated overleaf.

LITERATURE

SPECIAL AREA

[*BY GEOFFREY BOUMPHREY*]

A Derelict Area. By Thomas Sharp. The Hogarth Press. 1s. 6d.

THIS booklet describes in detail the South-West Durham coalfield, a small area lying, roughly, within a five-mile radius of Bishop Auckland. The author, who lives in the district he writes of, finds no need for literary graces (though they are at his disposal, as readers of his *Town and Countryside* will well remember), the facts make all the impression he desires. His short impassioned sentences are like blows of a hammer. "Of the 135,000 inhabitants of the district all but a few thousand agricultural workers exist solely, whether directly or indirectly, by the winning of coal. . . . It is extremely improbable that this coalfield, which once employed nearly thirty thousand men, will ever again employ more than about eight thousand. The plain fact is that the greater part of the coalfield is finished, is dead." Small town by small town, village by village, he describes the areas as it is today. "Within this radius . . . there was normally employment for 9,350 mineworkers. Today there is employment for 250." "Then there is Witton Park . . . it consists principally of five or six long, narrow, straight streets of an indescribable dreariness. Its roads are a series of jagged or rounded crater-like holes and are impassable by vehicle. The whole place has the appearance of one large rural slum. . . . Yet, despite its foulness, Witton Park is regarded by many as a desirable place of residence. There is a curious migration into it, the attraction being lower rentals than apply in other parts of the area." And so on, until the mind refuses to visualize the descriptions given. Mr. Sharp is properly angry with those who would hope to improve matters materially by romantic schemes of land settlement. "Even if it could be brought up to the standard of the Lincolnshire potato farms . . . (which is wellnigh impossible), still it would employ only about 11 per cent. of the total workers." Wholesale evacuation is rejected for two major reasons: many of the inhabitants own their houses, and, strangely enough, most of them love their countryside. The course recommended is the double one of encouraging migration to other districts and inducing new industries to come to this. "Here is an area already intensively developed for industrial purposes, with a network of railways and roads, a power supply capable of unlimited extension, a male labour market where at present there is a huge supply and no demand, a female labour market that has never been properly utilized. . . . It is surely more sensible to rehabilitate this already industrialized region, and regions like it, than to continue to industrialize new areas in other parts of the country." There may be, and the recent report from the Commission for the Special Areas of England and Wales goes to show that there is, perhaps, some possibility of such a course being eventually followed. In the meantime may one suggest that the urging of its speedy adoption would be a suitable field of activity for the Council for the Preservation of Rural England?

THE PLANNING OF BUCKINGHAMSHIRE

Buckinghamshire Regional Plan. Report Prepared for the County Planning Advisory Committee. By W. R. Davidge, F.R.I.B.A., F.S.I., A.M.INST.C.E., PP.T.P.I. Copies obtainable from the Clerk to the Council, County Hall, Aylesbury, Bucks. Price 10s. 6d.

THIS Report, prepared by Mr. W.R. Davidge, PP.T.P.I., F.R.I.B.A., for the Buckinghamshire County Planning Advisory Committee, is in the usual form of such reports, and is fully illustrated by a coloured map and plans, diagrams and photographs.

The Report deals with the whole county and is divided into two parts: Part I comprising a description of the region and of the planning powers available for securing its orderly development and the preservation of the many things of beauty that it contains; Part II consisting of an explanation of the various planning proposals.

The first chapter comprises a brief survey of the county, including an analysis of the soils based on geological formation and of the physical characteristics they produce; the probable trend of future development (it is observed that 12,000 acres, or nearly 3¼ per cent. of the whole county, have been absorbed for building purposes during the 10 years 1922–32); present tendencies (industrial immigration has brought about an increase of 65.3 per cent. in the population of Slough); administrative districts; road improvements carried out or arranged for; planning action by authorities; position created by the passing of the Local Government Act, 1929, and the Town and Country Planning Act, 1932 (greater opportunity for collaboration by the county council).

Chapter two sets out the objects of planning and their connection with the regional plan and includes sketches indicating alternative possible developments of the same piece of land at different densities.

The first of the proposals of the regional plan to be explained are *Roads*, proposals for which are divided into sections indicating which have been confirmed by the County Council or its Highways Committee and which are at a more tentative stage. Included in the first group are the Maidenhead Bypass (80 ft.), an important new road (80 ft.) north of Slough and the Trading Estate, and the completion of the Western Avenue (100 ft.). Many of the proposals comprise bypasses for towns or villages. These proposals were adopted prior to the Restriction of Ribbon Development Act, and it is probable that greater widths, providing for dual carriageways, are now likely to be adopted.

The description of the road proposals is followed by a discussion of the powers that are available for carrying them out, reference being made to byelaws, planning schemes, the Public Health Act, 1925, and the Roads Improvement Act, 1925 in connection with building lines. It is suggested that the minimum building lines for Class I roads should be 30 ft. and for Class II roads 25 ft. Several diagrams are reproduced showing suggested lay-outs for road junctions, including roundabouts and staggers. Here again the subsequent Restriction of Ribbon Development Act will probably warrant a rather bolder outlook, although the Report does recommend parkway treatment for the Maidenhead Bypass, the Western Avenue, the North Orbital Road and the proposed road north of Slough.

Proposals for *Open Spaces* are divided into three groups: Reservations of national importance, reservations of regional importance, open spaces of local importance. It is suggested that the first two groups should be largely secured by the control of building development and concentration of it in the most suitable places. The last would be a matter for definite reservation in a scheme. Among the reservations proposed are a 100 yd. wide strip along the banks of the Thames, and the main features of the Chiltern Hills. Generally speaking, recommendations are made for preserving hills, riversides, notable private parks and the surroundings of ancient monuments. A system of footpaths and bridle ways linking up the various proposed reservations is also recommended. Five key points are selected for the provision of aerodromes.

With regard to *Zoning*, the general principle advocated is to group ordinary residential development round existing centres or to make provision for new centres where necessary, keeping the surrounding country open. In selecting suitable areas for development the question of public services is an important factor, and therefore a general review is given in respect of water supplies and sewage disposal.

It is suggested that dwelling-houses and residential buildings should be definitely prohibited on land liable to flooding.

The regional zoning proposals are broadly divided into three groups :—

1. Areas of building development.

2. Intermediate areas of country house zones (acres per house), areas for industries arising out of the use of the soil, areas subject to general development order.

3. Preservation zones including places of natural interest or beauty, agricultural zones (some permanent and some subject to agreement that notice would be given of any development proposed, to enable the question of detailed zoning to be considered), low-lying land and forestry zones.

Industrial areas are reviewed in general and also with reference to the use of the soil (e.g., brick making, lime burning, cement making, gravel working, sand digging, and stone quarrying), other than agriculture.

General recommendations are made with regard to the siting and design of buildings, control of camping grounds, control of advertisements, control of excavations, spoil heaps and tips and control of petrol filling stations.

The Report concludes with some notes giving general guidance on the design and materials of buildings related to local traditions and surroundings, on the lessons to be learnt from a study of the lay-out of some of the old towns and villages in the region, on street furnishings and tree planting.

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. Crown Copyright is Reserved.

Failure of Plastered Ceiling

¶ *A FIRM of builders' merchants reported the failure of a ceiling plastered in a "coal ash mortar." It was stated that the mortar which they had supplied had been mixed according to their usual specification. The builder had complained that whilst the ceiling in question had not actually collapsed, in some parts the keys had cracked and the ceiling was loose. A sample of the mortar in the form of keys taken from the ceiling was submitted.*

The enquirer wished to know :—

(a) Whether there was any justification for the builder's statement.

(b) If the mortar could be considered defective.

(c) The best method of overcoming any defects in the mortar.

The following replies and comments on the three questions were given :—

(1) It would not be possible to judge whether the builder was justified in complaining that in some parts the key had cracked away and the ceiling was loose without examining the ceiling in question.

(2) The specimen of mortar, in the form of keys from the ceiling plastering, was certainly somewhat friable, but not more so than might be expected from a comparatively freshly made non-hydraulic lime mortar. It is concluded from the large number of similar failures reported to this station that an ungauged lime plaster on ceiling lathing is not a reliable material for modern conditions in building. An ungauged non-hydraulic lime plaster can only harden slowly by carbonation, and then only when absorption of atmospheric carbon dioxide can occur easily.

Whilst it is appreciated that ash mortar is widely used in certain parts of the country, there must always be some risk in the use of ashes owing to their inherently variable quality. It is generally accepted that the value of ashes, etc., in lime mortar lies in the fact that certain constituents of the ashes may exhibit pozzolanic properties, i.e., have the property of combining chemically with the lime to form a cementing material; but should these properties be absent, the ashes would behave as an inert material in the same way as sand. Then, however, owing to the natural characteristics of the ashes, they cannot be considered as satisfactory as sand. There is also the further possibility that if unburnt coal is present, the mortar will exhibit unsoundness due to the slow expansion of the unburnt material on exposure to air.

It may be added that moist conditions are necessary for the development of any pozzolanic properties and in indoor work the comparatively rapid drying out, which would occur particularly during warm weather, would not be favourable.

The above observations are not intended in any way to detract from the usefulness of ashes in mortar, but they must be borne in mind if successful results are to be obtained.

(3) With regard to the third query, it is now a common practice to gauge a non-hydraulic lime with Portland cement, not only in ceiling work but in mortar for brickwork. A definite hydraulic set will be obtained and the final strength of the mortar will be much greater than that of an ungauged lime.

However, the effects of any unsoundness in the ashes will then be accentuated, and if this procedure be adopted *particular* care must be taken to ensure soundness, and further, the mix must not be retempered and should be used within two to three hours of adding the cement.

A simple test to determine the soundness or otherwise of such substances is to be found in Building Research Bulletin No. 5, "The Properties of Breeze and Clinker Aggregates and Methods of Testing their Soundness." A copy of this may be obtained from H.M. Stationery Office, price 6d. net.

Concrete Bricks

¶ *AN architect required information regarding the suitability of concrete bricks for general use in buildings.*

It appears that the application of concrete to the manufacture of bricks is a natural outcome of the extending use of cement products in the building industry. During the past year many enquiries have been received regarding the suitability of such bricks for general building purposes.

Provided the strength and resistance to water penetration are adequate, the most important properties to be considered are the drying shrinkage and moisture movement. When a concrete product dries after casting it tends to shrink, and if the bricks were built into a wall before this shrinkage had taken place there would be a tendency for the wall to crack. It is therefore essential that the bricks shall not be used until they have dried and completed the greater part of the shrinkage, and the responsibility should rest with the manufacturer to ensure that the bricks have been stored under cover for a period sufficient for that purpose. It may be noted that the British Standard Specification for Precast Concrete Slabs requires a period of storage of four weeks before delivery and sets limits for the shrinkage of the blocks. This indicates the kind of period that may be required with concrete bricks.

It must be borne in mind, however, that the moisture movement of concrete bricks will always be greater than that of well-burnt clay bricks, but provided they are carefully matured in the first instance serious cracking is not be be expected. The type of mortar used would have an important bearing on the liability of a wall to cracking, and a gauged lime mortar is to be preferred to a strong cement mortar.

Efflorescence due to soluble salts is not likely to occur to any appreciable extent in concrete bricks provided the sand used was free from salts. The crushing strength and permeability of the bricks will vary, of course, with the cement content and general quality of the brick, but there is no difficulty in making concrete bricks adequate for all normal uses. The resistance to frost should also be satisfactory.

Mould Growth on Cork Tiles

¶ *AN architect forwarded samples of cork tiles taken from a billiard room in the basement of a house. These had been bedded in a bituminous compound on a hard encaustic tile floor.*

The house after remaining empty for some years had been redecorated and repaired, and in the course of this work dry rot was observed. The affected timber was cut out and the new timber creosoted. Recently a new outbreak of dry rot occurred in old timber left in the billiard room.

Whilst there was no evidence that the cork had been attacked by the dry rot, there were signs of a mould growth between the cork tile and the encaustic tile where the former had not been solidly bedded in bitumen. The inquirer wished to know whether the cork could be relaid without fear of attack.

The sample of cork tiles referred to was submitted to the Forest Products Research Laboratory, who reported that, although there was mould growth present on the tiles, showing that there was sufficient moisture for fungus development, no dry rot was found. It was stated further that while cork does not form a barrier against dry rot, it does not, on the other hand, provide food material for it. Attempts to infect cork with dry rot fungus have so far proved fruitless, and it must be concluded that cork is immune from attack by this organism. It would appear that what was assumed to be dry rot beneath the cork tiles was actually a relatively harmless growth of mould.

Provided the original source of the dry rot had been properly attended to, and timber in the vicinity rendered resistant to dry rot by treatment with creosote or other preservative, there would be no objection to relaying the cork tiles.

It was noted that the bitumen in which the tiles were bedded was by no means continuous, and in view of the apparent dampness in the floor some additional care might be taken in this respect when relaying the floor.

KOLLEKTIVHUS, STOCKHOLM

DESIGNED BY

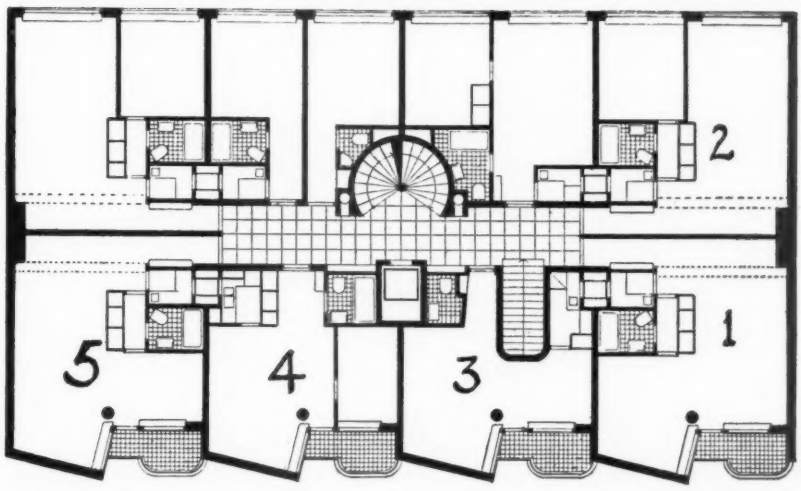
SVEN MARKELIUS

PROBLEM.—*According to the 1930 census, 25·1 per cent. of all the married women in Stockholm are professional workers; there are thus a very large number of families whose general mode of living differs considerably from the traditional family type; the new types of family have brought about a more equal distribution of labour problems and of advantages and responsibilities. The most far-reaching development is caused here by the demand for the greatest possible simplification and the most thorough rationalization of household labour. Most of the changes which modern dwellings have undergone in respect of design, equipment and choice of material are an expression of this endeavour. The compact planning of rooms, with their increased convenience, the increasingly more perfect cooking appliances, the use of non-rusting metals, tiles, linoleum and rubber have greatly facilitated work in the home. For the professionally employed housewife, however, this is still not sufficient. Only by extremely radical measures, by a reorganization of the form of dwellings, is it possible to secure adequate adaptation to the mode of living which the new type of family presents.*

SOLUTION.—*The building contains 57 flats of one to four rooms. On the ground floor are the children's section, a restaurant and, in connection with the latter, a fully equipped central kitchen, which is connected by food lifts with most of the rooms. Those who wish to do their own cooking can make use of the hot and cold water, cleaning appliances, service cupboards, refrigerators, etc., and a modern cooking stove, all of which are provided in each flat.*

The children's department occupies an important position in the general plan of the house, and is run by properly trained nurses and teachers. These communal children's rooms do not separate the parents from their children as they are solely intended to enable the children to be cared for during the time in which the mother, by reason of her work, cannot attend to them herself. In the dwellings on the first floor space has been reserved for isolation rooms to be used in case of any sickness in the children's department, together with bedrooms and workrooms for children of school age.

The photograph on this page shows the main elevation of the building, and on the right is a typical upper floor plan.



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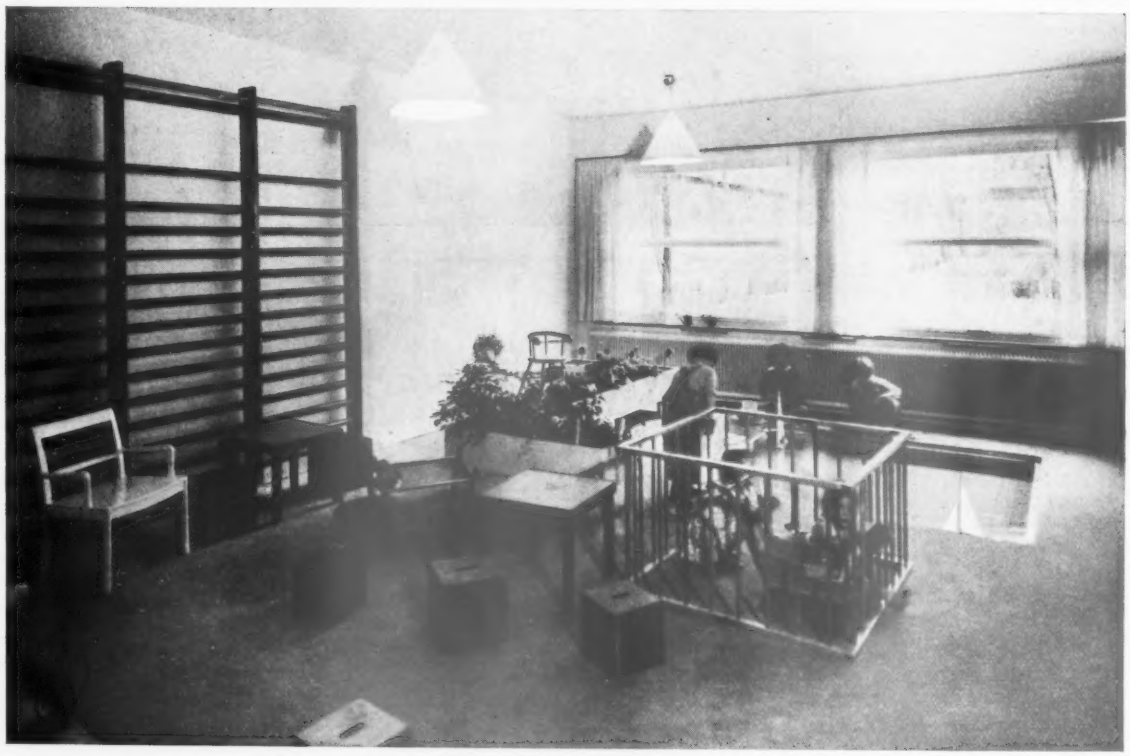
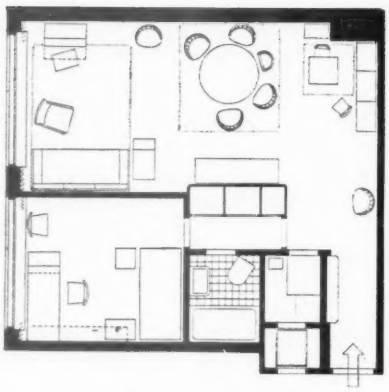
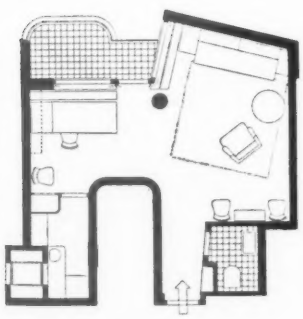


DESIGNED BY SVEN MARKELIUS

TYPE 1. 1,680 kr. p.a.

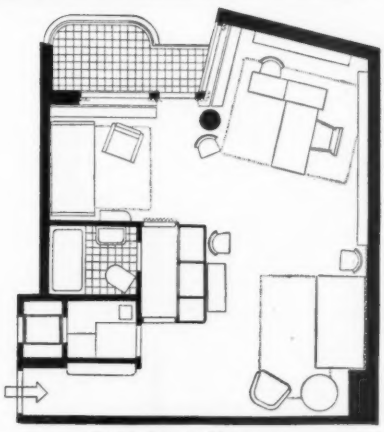


TYPE 2. 1,680 kr. p.a.



TYPE 3. 1,069 kr. p.a.

TYPE 4. 1,375 kr. p.a.



TYPE 5. 1,6E0 kr. p.a.

On this page are shown five plans of typical flats, the photograph showing the interior of type No. 3. On the opposite page is a view in type No. 5 and below it the children's playroom on the ground floor.

The cost of furnishing the flats is as follows:
Type 1, 2,888 kr; type 2, 1,403 kr; type 3, 1,027 kr; type 4, 3,061 kr; type 5, 2,255 kr.
These figures include all furniture shown on the plans but do not cover textiles and lighting fittings—kr.=1s. 2d. (approx.).

KOLLEKTIVHUS, STOCKHOLM

On this page are shown two typical flat interiors: top, the living room in type 2; bottom, the desk and screen of type 1.

DESIGNED BY SVEN MARKELIUS

TECHNICAL SECTION: 38

HEATING, AIR CONDITIONING *AND* MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.C.L., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

AIR CONDITIONING
(Continued)

5. DUCTS, FANS, WASHERS, HEATERS AND THEIR ACCOMMODATION

DUCTS.

THE accommodation of ducts in buildings is often troublesome unless they are considered at the outset, and proper provision made on the drawings.

It is not possible to give any arbitrary method for sizing them, as they follow directly from the air volume calculations already referred to.

Ducts may be sized on a pressure loss basis, as in the case of pipe sizing, or on a velocity basis, the frictional loss being calculated afterwards. This matter is fully covered in a number of textbooks.* Where noise is unimportant, as in factories, air speeds in main ducts up to 2,000 ft. per minute are possible. In buildings where quietness is essential velocities somewhat as follows are usual.

Cross-sectional Area of Duct in square feet	
16 sq. ft. and larger	1,200–1,500 ft. per minute.
8–16 sq. ft.	up to 1,000 ft. per minute.
Less than 8 sq. ft.	600 to 800 ft. per minute.

At these air speeds it will be found that the pressure loss (which is commonly expressed in inches of water gauge) is comparatively small, which helps in keeping the fan pressure low. This in turn makes the problem of a silent running easier of solution.

Noise in the ducts themselves is due not so much to the movement of air as to abrupt changes of velocity, or to impingement on sharp edges such as occur at the joints of metal ducts. Further noise is caused by drumming of the walls of the ducts themselves. Sound created in this manner is conveyed for a considerable distance by internal reflection, and may be audible in all the rooms of the building.

For this reason, and for reasons of cost, it is wise to avoid the use of metal for as much of the main trunking as possible by forming it in concrete, brickwork, or other similar construction. It is often possible, for instance, to use the space between foundations under a basement floor for this purpose by building up sleeper walls to the underside of the concrete slab as in Fig. 225. Similarly a basement corridor may often be sub-ceiled, as in Fig. 226. The walls and ground floor slab exist in any event and the cost of the duct is then only that of the sub-ceiling.

Metal ducts are free from drumming when of circular section, and these, incidentally, are also cheaper, but of course occupy more space for a given cross-sectional area. When ducts must be rectangular, stiffeners on the outside assist in giving rigidity, or a better method is to punch the plates with a diamond "break" as in Fig. 227, though this obvious method does not seem to have been much used in this country.

Internal insulation against noise is referred to later.

Another material for the construction of ducts is asbestos-cement. Though these are more costly, except for the smaller standard sizes, they are more permanent and noise free.

FANS

Fans are of two main types, propeller and centrifugal.

Propeller fans are suitable for free air conditions (i.e., when there is no back pressure), but when connected to ducts

* For example E. L. Joselin on Ventilation, published by Arnold. 1934.

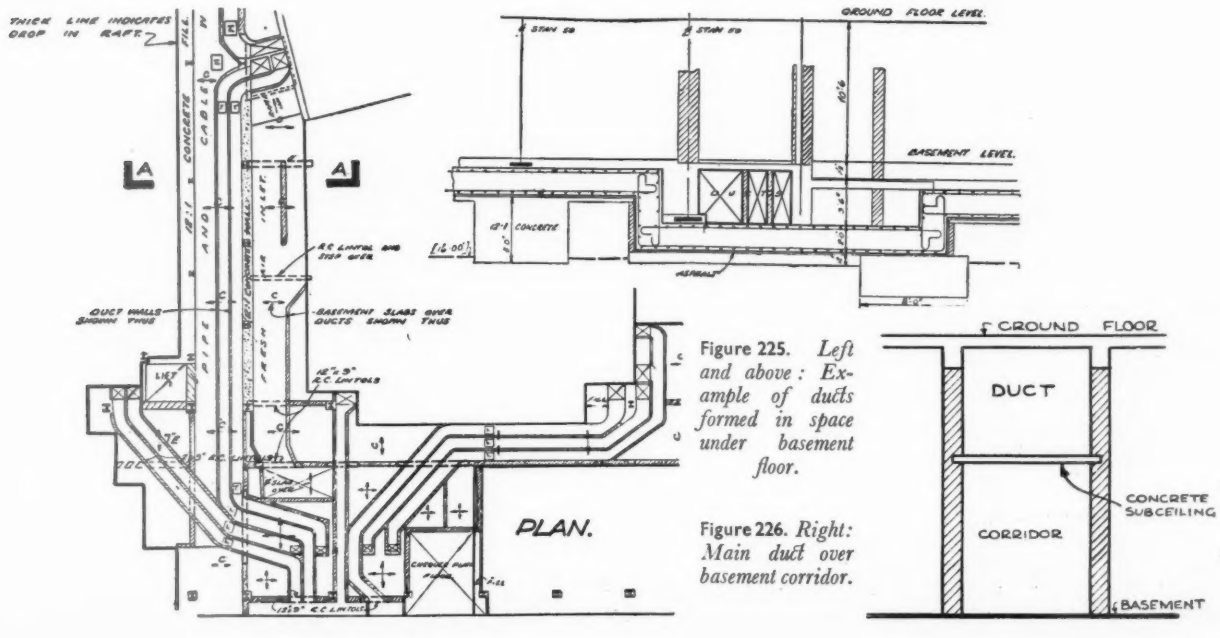


Figure 225. *Left and above: Example of ducts formed in space under basement floor.*

Figure 226. *Right: Main duct over basement corridor.*

their speed has to be such that noise cannot be avoided.

Centrifugal or cased fans alone need be considered for air conditioning. A section through such a fan is shown in Fig. 228, and the characteristics may be briefly referred to as follows.

Fan performance needs consideration of

1. Volume.
2. Pressure (*a*) Total Pressure.
   (*b*) Static Pressure.
   (*c*) Velocity Pressure.
3. Horse-power.

The term *volume* calls for no explanation except that at constant speed a centrifugal fan will handle a constant volume, independent of the temperature or density of the air. Thus, as the air becomes warmer, and therefore less dense, the work done in moving the reduced weight will require a lower power input, and conversely if the air is colder, a higher power input will be required.

Pressure may perhaps be best understood from Fig. 229, which indicates a fan discharging into a duct having a controllable orifice or resistance at the end, and provided with two water gauges connected to a pitot tube. One gauge is connected to the portion of the tube turned to face the air stream and measures the total pressure (static and velocity), the other gauge is connected to the portion of the tube having holes at right angles to the stream and measures static pressure only. The difference between the two gives the velocity pressure. When the orifice is completely closed there is no air flow and both gauges read the same, i.e., static pressure. As the resistance is lowered and air starts to be delivered the static pressure falls but the velocity pressure increases, until at full opening the former may have dropped nearly to zero and the latter will be at a maximum.

The total pressure of a fan is the increase in energy per unit volume between inlet and outlet and is directly measured by the differential total pressure between the discharge and suction of a fan as in Fig. 230.

Normally the resistance against which a fan operates consists of the friction of the ducting and turbulence, and eddies caused in passing heaters, washers, etc., due to the motion of air through the system. All these factors are calculable up to a point, but complete accuracy is never attainable, and the pressure for which a fan is installed should include a margin over the maximum calculated requirements. The selection of a suitable type should always be made with this in mind, and for this purpose use is made of characteristic curves such as those shown in Fig. 231.

The most commonly used type of fan is the forward curved blade type, Fig. 232a, which is both smaller and cheaper than other forms. It has a tendency to "hunt" (i.e., to vary in

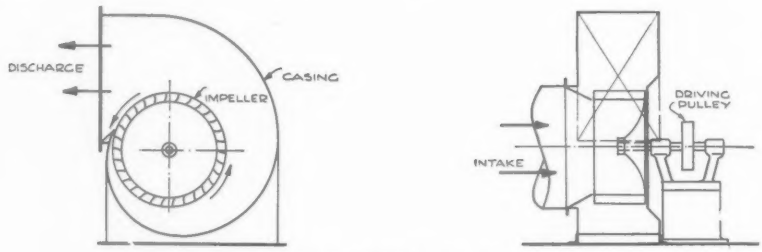


Figure 228. *Centrifugal fan.*

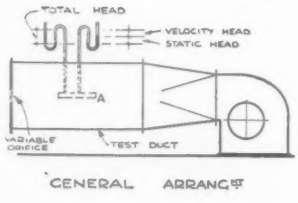


Figure 229a.

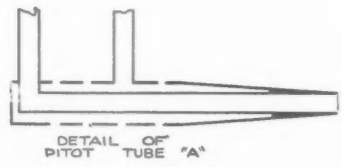


Figure 229b.

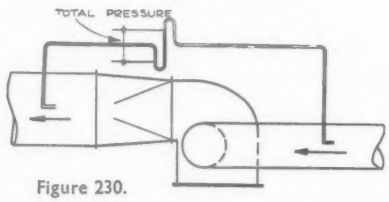


Figure 230.

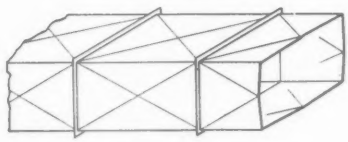


Figure 227.

Figure 227. *Diamond-break stiffening of duct-walls.*

Figure 229a & b. *Fan test.*

Figure 230. *Measurement of total pressure produced by a fan.*

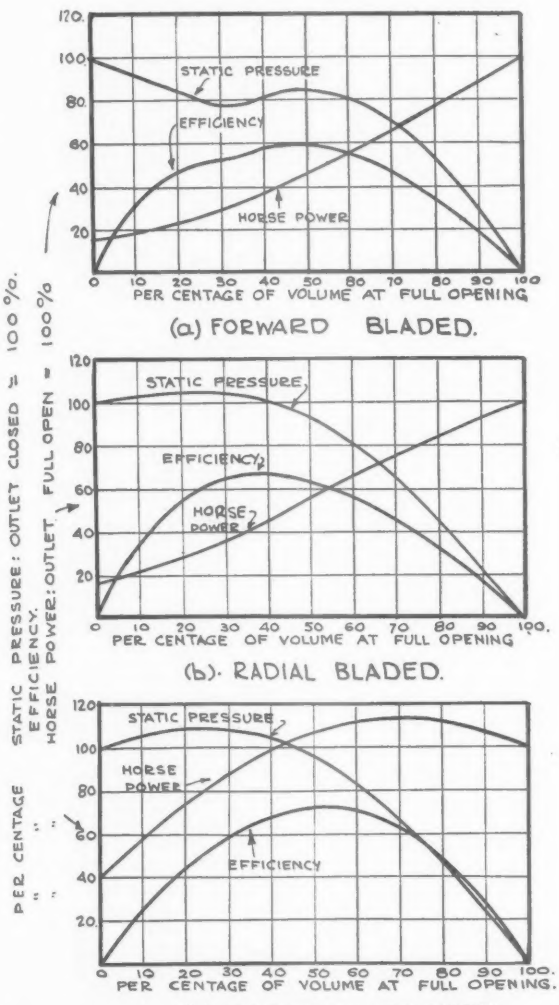


Figure 231. *Characteristic curves of fan.*

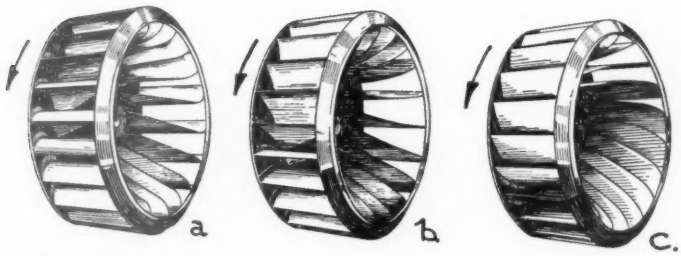


Figure 232. *Fan impellers. a: forward bladed. b: radial bladed. c: backward bladed.*

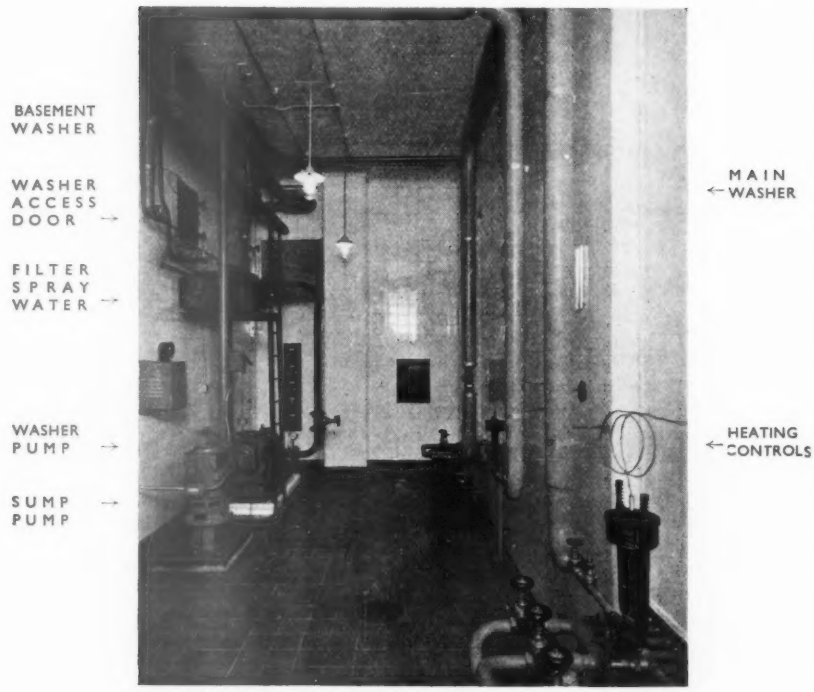


Figure 233. *Concrete washer casings finished in white glazed tiles.*

speed) under certain conditions, causing pulsations in the ducts, and is not suitable for parallel operation.

The type shown in Fig. 232 with radial blades is a recent development of the old paddle-wheel or straight-bladed type. It is higher in efficiency than the forward curved blade, operates at higher speed, and may be used in parallel.

The backward curved bladed fan, Fig. 232c, is the highest both in efficiency and speed, but tends to be noisy in operation at high water gauges. It will be seen from the curve that the horse-power characteristic is self-limiting, i.e., begins to fall after a certain point, whereas the others continue to rise. This is of importance in selecting the motor.

The *horse-power* absorbed by a fan depends on the pressure, the resistance, the volume of air moved per minute, the temperature of the air, and the efficiency of the fan. The volume varies directly as the speed, the pressure as the square of the speed and the hores-power as the cube of the speed.

A fan is often selected for its silence and flatness of pressure curve rather than for its high efficiency. It appears to be difficult to take all three points into consideration at once.

Fans may be arranged to deliver in any direction, vertically, horizontally, or at an angle. Drives may be by direct coupled motor or steam engine, or by belt. A type of drive now greatly used owing to its silence is of the endless Vee rubber belt type using grooved pulleys. Such a drive enables a motor of a higher speed to be used than with direct coupling, and gives a more economical arrangement, since such a motor is smaller and cheaper than the slow speed direct-coupled type.

Silencing of fans has now reached a stage where certainty of results can be forecast. Casings are deadened by asbestos spray or by using "laminated metal," which consists of two sheets of steel with a layer of felt between. Bearings and motors can be isolated from the building by cork or other anti-vibration material. Motors of super silent type are now available for all types of current. In general where extreme silence is called for it is best to avoid ball bearings, using sleeve type ring oiled bearings instead, both for fan and motor. Transmission of vibration to metal ducts from the fan casing is avoided by the use of sail-cloth connections both on fan suction and discharge.

WASHERS

The design of washers need not be entered into. The essentials so far as the owner is concerned are small maintenance and long life.

The speed of air through a washer is usually 500–600 ft. per minute. The length is normally about 7 ft. 6 in., but is increased where a number of banks of sprays are necessary for cooling, sometimes to as much as 12 ft. 6 in.

Under maintenance, clogging of the jets is one of the chief troubles. This is avoided by choice of a suitable wide open type of spray nozzle, also by adopting an easily-cleaned filter, preferably outside the washer.

Long life calls for materials other than the usual galvanized iron. The washer casing may be made of concrete, as in Fig. 233, having the tank portion at the bottom asphalted. The eliminator plates may be made of zinc or lead coated steel—both of which are preferable to galvanized iron; or they may be made of glass. The glass used is ribbed, with the ribs facing the air stream, and is arranged in three or four series mounted in teak frames.

HEATERS

For the sizing of heaters reference is necessary to manufacturers' test data. The number of rows of tubes depends on temperature rise, temperature and nature of heating medium, i.e., whether steam or hot water, and air speed. The face area depends on air volume and free area between tubes. This is again determined by the velocity, and it is usual to fix this arbitrarily beforehand, generally between 800 and 1,200 ft. per minute through the free area.

Heaters are of four main types—cast iron, as Fig. 234; plain welded steel, as Fig. 235; finned steel, as Fig. 236; and finned copper, as Fig. 237. The latter are the highest in efficiency per unit of weight and size, though possibly difficult to clean if they become dirty. The plain tube type is almost self-cleaning since there is little on which the dirt can lodge.

Where placed after a washer, some means of protection of steel heaters is desirable, due to the moisture carried through. They are often sherardized, i.e., zinc protected.

The space necessary for the accommodation of the complete plant depends so much on circumstances that

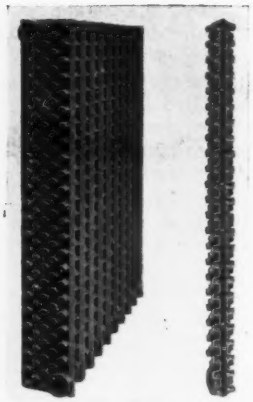
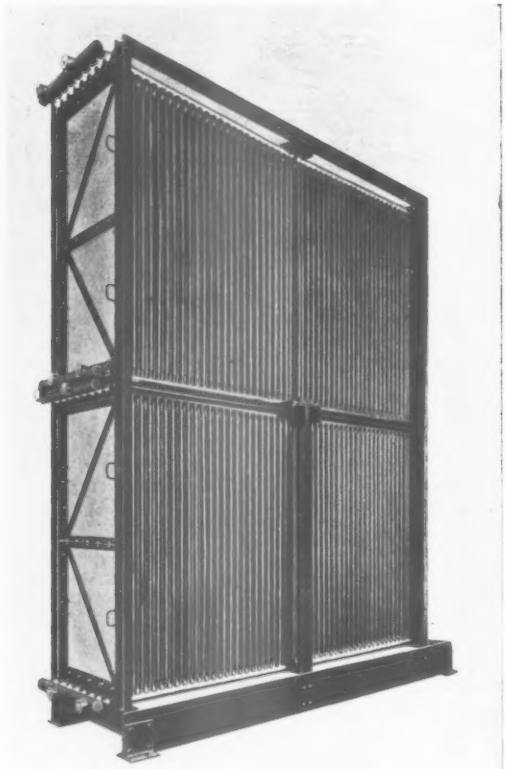


Figure 234. *"Vento" : cast iron air heater.*

Figure 236. *Finned steel tube heating battery ("Weldex").*



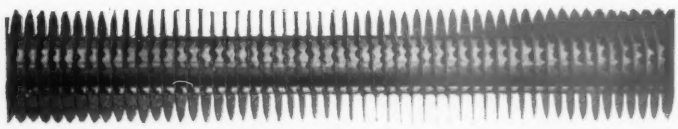


Figure 237. *Finned copper heater tube.*

Left : Figure 238. *Method of fixing insulation in metal duct.*

Figure 235. *Right : Plain steel tube heating battery ("Weldex").*

it would be unwise and misleading to give dimensions, though this has often been tried.

6. DUCT INSULATION

Insulation of ducts carrying cooled air is essential, as otherwise, before the last outlet is reached all the cooling effect will be lost. For this purpose one of the various fibre boards may be used, or preferably compressed cork. Inside the building the former is often adequate, and when placed inside the duct serves both as a heat and a sound insulator. Fig. 238 shows the construction of an insulated duct of this type.

Where outside the building, nothing less than 2 in. cork for inlet ducts and 1 in. for recirculation ducts is adequate. This may be placed inside or outside the duct. The latter is more usual, and a waterproof treatment is then necessary.

Ducts of concrete or brickwork make temperature variations in the air stream very sluggish owing to the enormous heat reservoir effect. It is essential, therefore, that all such ducts and shafts used with air conditioning plant should be insulated on the inside. For this, $\frac{1}{2}$ in. of cork of $\frac{5}{8}$ in. fibre board is sufficient.

7. ELIMINATION OF NOISE

Isolation of fans has been referred to. Similar isolation of washer pumps and refrigerating machines is essential. The former may be mounted on cork beds and isolated from the pipes by rubber hose connections. The latter present a more difficult problem, especially if large and of the reciprocating type. Owing to its weight some form of spring foundation is necessary for the compressor. The pipes conveying the refrigerant cannot be made flexible as the pressures are too high.

The necessity for duct insulation to prevent transmission of noise from one room to the next will be apparent from Fig. 239.

A noise in room A will enter the duct

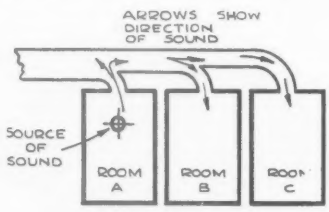


Figure 239.

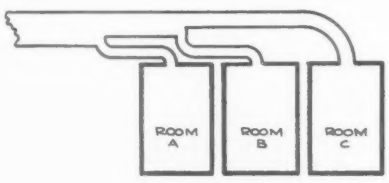


Figure 240.

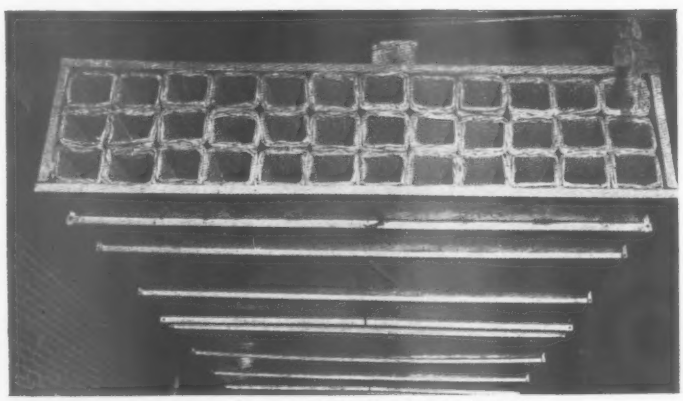


Figure 241. *Sound absorber for use in ducts.*

against the air stream and enter rooms B and C.

Much can be done by connecting each room with a separate duct of fair length, say 8 or 10 ft., as in Fig. 240, and preferably insulated.

A noise in A then has about double the distance to travel, and if the ducts are lined any sound wave will be almost certainly lost before it reaches B or C.

A more elaborate method, applicable to special cases, is as shown in Fig. 241. With this sound absorber placed in the duct the resistance to air flow is increased very little, yet sound absorption may be almost perfectly efficient.

In establishing a satisfactory condition as regards sound transmission by an air conditioning or ventilation system, use is sometimes made of the decibel scale.

In an office building a sound level of 20 to 30 decibels may be normal and it is usually possible not to increase on this. Where the level is lower, say 8 or 10 db., an increase of 3 or 4 db. may be inevitable. In particular cases, however, the lining of the back of the grating with felt or other similar material may remove the last traces of sound.

If complete duct insulation for heat is not necessary (as in a plain ventilation system) lining the bends of the ducts and other reflecting surfaces with felt may often be sufficient to prevent transmission of noise from the fan.

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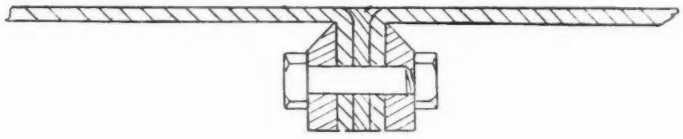
National Joint Council for the Building Industry

It is recalled that the National Settlement arrived at by the National Joint Council for the Building Industry in April last prescribed two increases of wages of ½d. per hour for craftsmen with proportionate increases for labourers. The first of these increases took place on July 1 last and the remaining increase is to take place on January 1 next. The terms of settlement included, however, provision for an enquiry into conditions in certain "depressed areas" claimed to exist in the South Wales Region, in the Northern Counties Region and in the West Cumberland Area of the North Western Region, in order to determine whether the second stage of the increase in wages should apply to those areas. That enquiry has now been completed. It has been found that the employers in the Northern Counties and West Cumberland did not desire to proceed further with the claim for special exemption and the investigation was, therefore, narrowed down to areas in the South Wales Region. The Commission which had been empowered to make decisions on the claims has decided that the second stage of the wage increase shall take effect on January 1, 1936, in all the areas which were the subject of the enquiry in the same way as it will take effect in all other districts throughout England and Wales.



TRADE NOTES

[*EDITED BY PHILIP SCHOLBERG*]

Gas Cooker Design

THE last Building Trades Exhibition showed that the gas industry was beginning to see the virtues of simplicity. Nearly all the water-heaters had been tidied up considerably, the familiar tangle of gas and water leads had disappeared behind plain circular or rectangular casings and the result was often quite as neat as the normal electric heater.

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And now the same thing seems to be happening to gas cookers, and again I suspect the electrical industry of providing the necessary stimulus. "Cabriole legs with decorative claw and ball" are fast disappearing, and oven doors are no longer covered with cast-iron feathers and fleurs-de-lis. The first manufacturers to break away from traditional designs were, so far as I remember, Parkinsons and Flavels, who each produced a small cooker which was easy to look at.

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Messrs. Parkinson have now gone a step further and produced a full-size cooker which has apparently been designed without any of the usual preconceived ideas about what the result should look like. The photograph on this page shows how successful this approach has been: there are no awkward spaces, the exterior is clean, and, although the price is high (£29 15s.) it may be justifiable on a first-class job.

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This cooker, known as the R.A. type, has a large oven, with a separate grilling chamber above it, both doors being bottom hung and fitted with spring counterbalances. The boiling rings are mounted in enamelled steel bowls which can easily be cleaned of any spillage and the burners themselves are lit automatically. The cooker measures 24 in. in width, 19½ in. in depth, with a total height of 42 in., including the splash plate.

Cinema Projection Screens

Since the publication of the Cinema number of this JOURNAL, which appeared a fortnight ago, I have come across a new type of all-metal projection screen which has been developed by Mr. E. G. Turner and is being marketed by the Patent Fireproof R.P. Screen Co., Ltd.

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The normal fabric screen for sound projection is perforated 25 per cent. with 1mm. diameter holes, but the fabric tends to close up gradually and impede the passage of sound, while the accumulation of dust and the periodical application of screen dressing has much the same effect.

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The designer of the metal screen points out that the holes in it remain at their full diameter permanently, and maintains on these grounds that the perforations in the screen can be reduced to 10 per cent. without any falling off in sound transmission, thus giving an increase of 15 per cent. in illumination or, alternatively, a corresponding saving in current. More even illumination and better definition is also claimed, this being due to the improved rigidity of the metal screen as against the fabric type.

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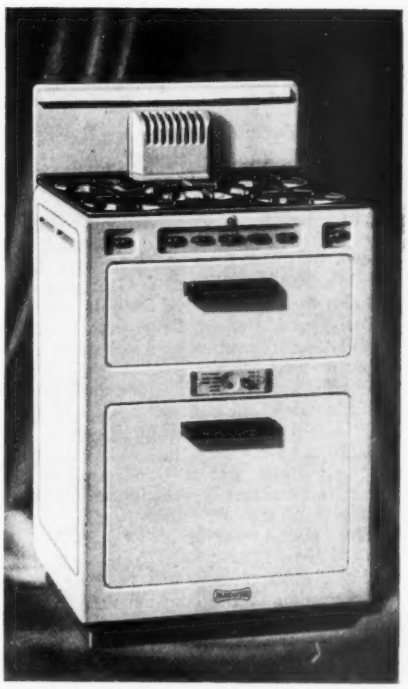
Some difficulty was experienced in finding a suitable material, but an alloy of aluminium and nickel finally provided a good non-corrosive base for a hard matt white enamel finish. The size of the metal panels is naturally limited, and the ingenious method of jointing evolved is shown in the headpiece to these notes. Any visible seam in the front of the screen would, of course, be fatal, and the flanged panels are, therefore, bolted together with a separate radiused strip in the joint.

Paint Data

Yet another manufacturer has adopted a rational method of presenting essential information about his products; this time it is Nobel Chemical Finishes, Ltd., who have re-issued, in a folder, the whole of the series of twelve paint Information Sheets



The new Parkinson R.A. type gas cooker.

which appeared regularly in this JOURNAL during the first few months of this year.

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The Sheets give full information on the actual use and methods of application of various synthetic finishes, washable distempers, plastic, acid-resisting and bituminous paints, with specifications of the right methods of preparing the various surfaces and notes on the number of coats required. Quite incidentally, I discovered not long ago that, short of a microscopical examination of a section of the paint film, it is quite impossible to tell how many coats of paint have been applied. Hence the specification of different coloured priming intermediate and finishing coats, so that the visiting architect can see at a glance how many coats have been applied.

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Manufacturer's Item

The Riley "Robot" stoker provides a system of mechanical stoking which automatically maintains constant temperatures at any predetermined level; the manufacturers hold that the Robot, unlike many forms of mechanical stokers for which automatic control is claimed, is completely automatic in action, and that, after the setting of a thermostat to the required temperature, the stoker will maintain it—automatically and efficiently.

The gearbox of the underfeed stoker is the manufacturers' patent. It automatically controls the coal feed to the boiler, whether it requires 16·6 lb. or 200 lb. per hour. Under such conditions it is necessary, of course, for the air supply to be in proportion to the fuel feed to the furnace, and this the "Robot" gearbox does as well. Hand adjustments after the machine is installed are quite unnecessary. The manufacturers state that they would at any time be pleased to deal with any combustion problem.

We regret that, on page 753 of last week's issue, the name of Durolife Compounds, Ltd., was incorrectly given.

LAW REPORT

ALLEGED MISREPRESENTATION AS TO BUILDING LAND

Arnott v. *Edwards.—Chancery Division. Before Mr. Justice Bennett.*

THIS was an action by Mr. Alexander Arnott, a builder, of Fords Grove, Winchmore Hill, against Mr. Edward David Edwards, of Rotherfield Street, Islington, for the rescission of a contract dated November 8, 1934, by which he agreed, at a public auction held at the George Hotel, Enfield, to buy a plot of freehold land at Russell Road, Enfield, for £500. Plaintiff also claimed the return of a deposit of £50 with interest.

Mr. Edwards counterclaimed for specific performance of the contract.

Sir Gerald Hurst K.C., leading counsel for Mr. Arnott, opening the case, explained that his client was a builder who had carried on business in Winchmore Hill and Palmer's Green for many years. At a public auction at the George Hotel, Enfield, Mr. Arnott agreed to buy Lot 2, and the ground on which he now asked for rescission of the contract was that he was induced to enter into it by a misrepresentation that the land was freehold building land, building being the important word.

Mr. Arnott's case was that so far from the land in question being land upon which houses could be built, it was, in fact, an old ballast pit filled, so recently as 1931, with 900 lorry loads of house refuse and covered with earth and grass. Without great expense, added counsel, which would make building uneconomical, the land could not be used for building operations.

Mr. Archer, K.C., for Mr. Edwards, denied that there was any misrepresentation and contended that Mr. Arnott was not entitled to have the contract rescinded.

After evidence had been given, his lordship found in favour of Mr. Arnott.

In giving judgment his lordship said it was claimed by Mr. Arnott that by the particulars and conditions of sale it was represented that Lot 2 was freehold building land. The question of whether that representation was in fact made depended upon the construction to be placed on the particulars and conditions of sale. They were prepared by the auctioneers, Messrs. Bowyer and Bowyer. At the auction 21 lots—the property of several owners—were offered for sale. It was stated on the cover of the particulars, and on the first inside page, that these were the particulars and conditions of sale of freehold building land, remunerative investments, and residences with possession. There was a separate description to each of the 21 lots, and Lot 2, which Mr. Arnott contracted to buy, was described in these terms: "A parcel of freehold land well situated at Russell Road, Enfield, and having a frontage thereto of about 150 ft. and a depth of 120 ft."

There were, continued his lordship, special conditions of sale relating to the lot which provided that it was sold subject to certain covenants and stipulations. The contention of Mr. Arnott was that as a result of what he read he understood that the vendor was representing that Lot 2 was a plot of freehold building land. He had no doubt that as a matter of construction a man of ordinary intelligence reading the particulars with a view to becoming a purchaser might quite well understand from them, as a whole, that the vendor was representing that Lot 2 was freehold building land. It was plain that the lot was not a "residence with possession," and equally plain that it could not be regarded as a "remunerative investment." Therefore it must fall within the third class of property offered for sale, namely, "freehold building land." The next question for the court to decide was whether Mr. Arnott was induced to make the contract by that representation.

"I am quite satisfied that Mr. Arnott was an honest and truthful witness and that when he bid for Lot 2 he did so in the belief that the statements in the particulars were true and that he was bidding for freehold building land" declared his lordship. It was contended for the defence that if one looked at the descriptions of the lots and compared the descriptions of the other lots with the description of Lot 2 it was impossible to come to the conclusion that Lot 2 was being represented as building land as other lots were expressly stated to be building land and Lot 2 was not. That argument, said his lordship, was often put forward by lawyers who were accustomed, by their training, to look at documents through a miscroscope. But business men did not do that, and to a business man of average intelligence these particulars and conditions of sale did represent that Lot 2 was a plot of freehold building land.

The land in question was not building land and, in his opinion, Mr. Arnott was induced to enter into the contract by a material misrepresentation of fact. Mr. Arnott was therefore entitled to have the contract rescinded and to have his deposit returned with interest at 4 per cent. Mr. Edwards's counterclaim for specific performance would be dismissed.

Judgment was accordingly entered for Mr. Arnott with the costs of the action.

THE BUILDINGS ILLUSTRATED

TEA LOUNGE, MARGATE (pages 767 to 769). The general contractors were Rice and Son, Ltd., with the Trussed Concrete Steel Co., Ltd., as consultants for the reinforced concrete work. The principal sub-contractors and suppliers included:—

Structure.—Crittall Manfg. Co., Ltd., metal windows; Lawford Asphalte Co., Ltd., asphalt; Haywards, Ltd., skylight and lay lights; Expanded Metal Co., Ltd., expaned metal.

Finishes.—Art Pavements and Decorations, Ltd., terrazzo to entrance steps; Carter & Co. (London), Ltd., terrazzo; Jos. F. Ebner, Ltd., oak dance floor and block flooring; India Rubber, Gutta Percha and Telegraph Works Co., Ltd., rubber flooring; Wm. Knight & Co., Ltd., paving in courtyard.

Equipment.—Benham and Sons, Ltd., heating and ventilation; George Jennings (Lambeth), Ltd., sanitary fittings; Grierson, Ltd., electrical installation; Hitchins Flush Woodwork, Ltd., doors and panelling in tearoom; Rice and Son, Ltd., bar counter; Luxfer, Ltd., metalwork to covered-way; Yannedis & Co., Ltd., door furniture, locks, etc.; E. C. Blackmore, wrought ironwork.

WOODHOUSE FARM (pages 770 to 771). The general contractors were W. G. Sheppard, Ltd. The principal sub-contractors and suppliers included:—

Structure.—W. G. Sheppard, excavations; Blackwells and National Roofings, Ltd., dampcourses; Grists Brickyard, Ltd., bricks; Swallows Tiles (Cranleigh), Ltd., tiles.

Finishes.—Pilkington Bros., Ltd., glass; Venesta, Ltd., woodblock flooring, venesta ply in parquet—kitchen, hall, dining-room; W. G. Sheppard, joinery and tiling; Liberty's, Ltd., Glamis Tweeds and Muntzer and Sons, textiles.

Equipment.—White Bays and White, Ltd., central heating; Crane, Ltd., radiators; Ideal Boilers and Radiators, Ltd., Ideal boilers; B. G. Suthers, Ltd., electric wiring; W. G. Sheppard, plumbing; Adamsez, Ltd., sanitary fittings; Yannedis & Co., Ltd., door and window furniture; Lion Foundry Co., Ltd., metalwork; Huntwood Water Co., Ltd., water supply; Percy Smith and Dorno Workshop and Studio, signs.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

DARTFORD. *Houses, etc.* Plans passed by the Corporation: 22 houses, Princes Road, for Mr. S. J. Sitch; extensions, 18 Wayville Road, for Methodist Church trustees; rebuilding Railway Hotel, Station Approach, for Meux's Brewery, Ltd.; four houses, Knowle Road, for Messrs. Young and Young; six houses, Mount Pleasant Road, for Mr. R. L. Orr; one block of houses, West Hill estate, for Messrs. J. R. Davies, Ltd.; silo, Daren Mills, Hythe Street, for Messrs. Daren, Ltd.; 12 flats, Spring Vale, for Messrs. C. Hyde and Co.; extensions, Bow Arrow Hospital and nurses' home, for Joint Hospital Committee; seven houses, King Edward Avenue, for Messrs. Pearson Bros.; four houses, Denver Road, for Mr. C. E. Palmer; 32 houses, Rochester Way, for Messrs. H. C. Wright & Co., Ltd.; development, Heath Farm estate, for Messrs. Newell and Burges.

DARTFORD. *Flats.* Mr. Reginald Brown has prepared plans for the erection of 65 houses and seven shops and flats in Tunnel Road, Dartford.

DARTFORD. *Maisonettes.* Brise's Development Co., Ltd., are to erect two blocks of maisonettes at Marcet Road, Dartford.

LEWISHAM. *Houses.* Plans passed by the B.C.: 18 houses, Ringmore Rise, for Mr. H. Macintosh; 12 houses, Elsiemaud Road, for Messrs. J. W. Heath and Sons; dance hall, extension, Pearfield Road, for the Bickley Co., Ltd.; houses, Princes Road, for Messrs. Wates, Ltd.; shops and flats, West Hill and Kirkdale and site development, 261-3 Baring Road, for Messrs. Marshall and Tweedy; development, 62-4 Loampit Hill, for Mr. E. A. Remnant; factory extension, 172 Perry Vale, or Mr. C. H. Linnell; development, Belvedere House site, Dartmouth Road, for Mr. E. C. Christmas.

LEWISHAM. *Houses, etc.* Plans submitted to the B.C.: 13 houses, Tewkesbury Avenue, for Mr. H. Macintosh; 219 houses, Woodstock estate, or Mr. A. J. Butcher; 48 flats, Perry Vale, for Messrs. Elgood and Hastie; houses, corner of Sydenham Park and Park Road, for Mr. J. Hodges; development, site of 100, Chinbrook Road, for Mr. H. R. Ward; rebuilding, Dolphin public-house, Sydenham Road, for Messrs. Courage & Co., Ltd.; additions, Catholic School, Moorside Road, for Mr. J. B. L. Tolhurst; flats, Canadian Avenue, for Mr. M. Gray; flats, Hermitage site, Lewisham Hill, for Mr. P. J. Sedgwick; 132 flats, Chinbrook Road, for Messrs. Walter Hearn and Chuter.

NORTHWOOD. *Cinema.* Mr. A. D. Clare has prepared plans for the erection of a cinema at Pinner Road, Northwood, Middlesex.

WOODFORD. *School.* The Essex E.C. has approved amended sketch plans for the enlargement of the County High School for Girls, at an estimated cost of £17,823. The architect is Mr. John Stuart, F.R.I.B.A.

SOUTHERN COUNTIES

BEXHILL. *Additions.* The Corporation has asked the borough engineer to prepare plans for the erection of a cubicle block and an administrative block at the isolation hospital.

BOURNEMOUTH. *Offices, etc.* Plans passed by the Corporation: Offices and showrooms, Holdenhurst Road, for Messrs. Malmesbury and Parsons Dairies, Ltd.; alterations, cinema, Shaftesbury Hill, St. Peters Road, for Mr. T. Jackson; alterations, Royal Bath Hotel, Bath Road, for directors; showrooms and workshop, Lorne Park Road, for Imperial Motors, Ltd.; parsonage, St. Francis Church, Charminster Road, for churchwardens; six flats, Weston Drive, for Messrs. Harrocks, Ltd.; 20 flats, Bodorgan Road, for Messrs. Chine Investments, Ltd.; service suites, Gervis Road, for Mrs. J. Hancock; two houses, Leybourne Avenue, for Davis Estates, Ltd.; 17 bungalows, Moorvale Road, for Mr. P. J. Joliffe; 17 houses, Leybourne Avenue, for Mr. E. W. Lancaster; two bungalows, Western Avenue, for Mr. J. C. Jones; 20 flats, Christchurch Road, for Mr. J. Elliott; 10 bungalows, Acton Road, for Mr. W. W. Baker; eight houses, Boundary Lane, for Mr. G. Troge; two blocks of flats, Bath Road, for Prudential Assurance Co.; 164 flats, Sea Road and Michelgrove Road, for Armstrong Estates, Ltd.

HASTINGS. *Houses, etc.* Plans passed by the Corporation: Six houses, Mildenhall Drive, for Messrs. Fryer and Sons; two houses, Brittany Road, for Mr. A. Honnor; two houses, St. Helen's Down Gardens, for Messrs. Oxley and Burpeigh; six houses, Cliftonville Road, for Messrs. Jeffery and Wyatt; house, St. Helen's Park Road, for Mr. T. Funnell; additions, Parish Hall, Wishing Tree Road, for Rector of St. Leonard's; alterations, Yelton Hotel, White Rock, for Mr. F. S. Bouquet.

OXFORD. *Cinema, etc.* Plans passed by the Corporation: Cinema, George Street, for Oxford and Berkshire Cinema Co.; extensions, garage and service station, Banbury Road, for Messrs. Hartwells, Ltd.; buildings, for St. Catherine's Society, St. Aldates, for the University; 24 houses, Iffley Turn Estate, for Messrs. E. Organ and Sons; four houses, Coniston Avenue, for Great Headley Homesteads, Ltd.; four houses, Staunton Road, for Mr. A. W. Lee; 12 houses, Courtland Road, for Messrs. Walker and Baker.

WORTHING. *Branch Library.* The Corporation has purchased a site at Salvington Road. Durrington, for the erection of a branch library,

WORTHING. *Church Hall.* Mr. H. P. Brazier is to erect a church hall at Brook Barn Way, Worthing.

WORTHING. *Reservoirs.* The Corporation is to improve the water supply and construct new reservoirs at a cost of £150,000.

WORTHING. *Development.* The Gladeside Estates, Ltd., are to develop an eight-acre estate at St. Lawrence Avenue, Worthing.

WORTHING. *Extensions.* The Ministry of Health has approved the scheme of the Worthing Corporation for extensions at Swandean Hospital at a cost of £24,790.

WORTHING. *Shops and Flats.* Mr. Paul J. Sainsbury is to erect 13 shops and flats at Broadwater Street, Worthing.

WORTHING. *Shops, Houses, etc.* Plans passed by the Corporation: 10 shops and houses Goring Road, for Mr. L. W. Waterman; 22 flats, Limbrick Lane, for Hesketh Estates, Ltd.; three houses, Bruce Avenue, for Mr. J. Francis; two houses, Park Avenue, for Mr. E. H. Barton; 10 houses, Trent Road, for Messrs. Maddison and Brookes; two houses, Franklyn Road, for Mr. B. P. Dwyer: alterations and additions, Nursing Home, Shelley Road, for Normanton Nursing Home, Ltd.; four houses, Sea Lane, for Mr. Sam Nove; six houses, Burnham Road, for Mr. A. Gutteridge; four flats, Douglas Close, for Messrs. Parsons Bros.; 10 houses, Bruce Avenue, for Mr. M. R. Fletcher; four houses, Findon Road, for Mr. A. Alldritt; two houses, Garrick Road, for Mr. S. C. Phillips; two houses, May Tree Avenue, for Mr. R. G. Pierce; 152 houses, King Edward Avenue for Messrs. S. W. Phillips & Co.; two houses, Ashurst Drive, for Mr. H. W. Ainsworth.

MIDLAND COUNTIES

HANLEY. *Houses.* Plans passed: Eight houses, Chell Street, for Mr. L. Brewer; warehouse, Barker Street, for Messrs. Barker Bros.; shop and house, Sandon Road, for Mr. N. Poole; extensions, Fairfield Pottery, Slippery Street, for Messrs. A. G. Hackney & Co.; 16 houses, Windermere Street, for Messrs. Salt and Trice; two houses, Leek Road, for Mr. J. Roberts; two houses, William Street, for Mr. R. Ansell; extensions, Ogden Road, for Wool's Tileries; extensions, Eastwood Works, Hampton Street, for Messrs. Taylor, Tunnicliffe & Co., Ltd.; three houses, Bright Street, for Mr. J. Roberts; additions, Arcade, Piccadilly, for Messrs. J. Perrer & Co., Ltd.

STOKE-ON-TRENT. *Houses.* Plans passed by the Corporation: Four houses, Stone Road, for Mr. E. Jones; extensions, Devon Pottery, Sutherland Street, for Messrs. S. Fielding & Co., Ltd.; two houses, Boma Road, for Mr. J. E. Robinson; six houses, Ashlands Road, Harpfields, for Mrs. C. Pearson; two houses, Hunters Croft, for Mr. W. Beech; 10 houses, Heron Cross, for Messrs. P. Bailey & Co., Ltd.; 90 houses, Longton Hall Estate, for Messrs. J. and F. Wooton, Ltd.; one shop and four houses, Vivian Road, for Mr. S. Mason; two houses, Stone Road, for Messrs. Cooper and Jones; nine houses, Meir Road, for Mr. E. Lea; two houses, Greenfield Road, for Mr. W. J. Baddeley; 12 houses, Stone Road, for Mr. A. Lilley; two houses, Blurton Farm Estate, for Mr. A. Millward.

WOLVERHAMPTON. *Houses, etc.* Plans passed by the Corporation: Four houses, off Ribbesford Avenue, for Mr. R. Brookes; two houses, off Finchfield Lane, for Mr. F. J. Freeman; two houses, Ettingshall Road, for Mrs. Hodgkiss; warehouse extension, Fryer Street, for Messrs. Attwoods, Ltd.; rebuilding, 29-31 Victoria Street, for Messrs. Timothy Whites, Ltd.; two shops, Stafford Road, for Mr. C. H. Whitehouse; 55 houses, St. Catherine's Estate, Bulls Road, and 73 houses, Woodlands Estate, for Mr. A. N. Bloxham; five houses, off Stafford Road, for Mr. Fullard; four houses, Penn Road, for Mr. J. V. Powell; two houses, Victoria Road, for Mr. M. L. Hill; two houses, Wimborne Road, for Messrs. H. and J. N. Patten; four houses, Bee Lane, for Lincoln College trustees; two houses, Westlands Road, for Mr. E. W. Baxter; two houses, off Stafford Road, for Mr. A. B. Tomlinson; skating rink, Birch Street, for Mr. Wilson Barrett; 12 houses, Holloway Street, for Major A. Holloway; two houses, Clark Road, for Messrs. Saunders Bros.; two shops, Stafford Road, for Bushbury Estate Co.

NORTHERN COUNTIES

BARROW-IN-FURNESS. *Houses, etc.* Plans passed by the Corporation: 84 houses, Flass Lane, for Messrs. A. Fletcher and Sons; hall, Risedale Road, for Trinity Hall trustees; two houses, Beach Crescent, for Mr. A. Nuttall; eight shops and houses, Beacon Hill estate, for Messrs. J. Whittaker, Ltd.; 16 houses, Derby Street, for Mr. E. V. Thorpe; nursing home, Albert Street, for North Lonsdale Hospital governors; alterations, 52-3, North Row, for Mr. Woodall; 11 houses and one shop, North Row, for Miss F. G. West; 14 houses, Furness Park Road, for Messrs. Styles and Bates; rebuilding, Methodist Church Hall, Warren Street, for Vickerstown trustees.

BIRKENHEAD. *Telephone Exchange.* H.M. Office of Works is to erect a telephone exchange in Pensby Road, Birkenhead.

BLYTH. *Houses.* The Corporation is to erect 144 houses at Hodgsons Road, at a cost of £46,206; and 40 at Kitty Brewster, at a cost of £12,373.

BRADFORD. *Houses.* Messrs. R. Middleton and Co. are to erect 104 houses in Dick Lane, Tyersal, Bradford.

BRADFORD. *Houses.* The Skipton Building Society has advanced £92,610 to Mr. Frank Holmes, of St. Annes-on-Sea, in respect of 318 houses to be erected in the vicinity of Lister Avenue, Bradford.

LEEDS. *Schools, etc.* The Corporation has approved plans by the trustees of Corpus Christi R.C. Church, for the erection of schools, assembly hall, etc., on the York Road housing estate.

MANSFIELD. *Houses.* Plans passed by the Corporation: 199 houses, Intake Estate, for Messrs. Cook, Howard and Lane; five shops and billiard room, Peck's Hill, for Messrs. Hextall and Kerry: 10 houses, Western Avenue, for Messrs. A. F. Houfton & Co.; four houses, Woodland Drive, for Mr. F. Fowler; four houses, Brick Kiln Lane, for Mr. T. E. Carlyle; extensions, Girls' Grammar School, Woodhouse Road, for the governors.

SOUTH SHIELDS. *School.* The South Shields Education Committee has asked Messrs. Page, Son and Bradbury to prepare plans for the erection of a senior school for 880 pupils in Sunderland Road.

TYNEMOUTH. *Houses.* The Corporation is to prepare plans for the erection of 26 one-bedroom type houses on the council estate.

RATES OF WAGES

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

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 1½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5½	1 1½
A_3	Abingdon ..	S. Counties	1 4½	1 0½
A	Accrington ..	N.W. Counties	1 6	1 1½
A_3	Addlestone ..	S. Counties	1 4½	1 0½
A	Adlington ..	N.W. Counties	1 6	1 1½
A	Airdrie	Scotland	*1 6	1 1½
C	Aldeburgh ..	E. Counties	1 2	10½
A	Altrincham ..	N.W. Counties	1 6	1 1½
B_3	Appleby ..	N.W. Counties	1 2½	11
A	Ashton-under-Lyne	N.W. Counties	1 6	1 1½
B_1	Aylesbury ..	S. Counties	1 3½	11¾
B_1	BANBURY ..	S. Counties	1 3½	11¾
B_1	Bangor ..	N.W. Counties	1 3½	11¾
A_3	Barnard Castle	N.E. Coast	1 4½	1 0½
A	Barnsley ..	Yorkshire	1 6	1 1½
B	Barnstaple ..	S.W. Counties	1 4	1 0
A	Barrow	N.W. Counties	1 6	1 1½
A	Barry	S. Wales & M.	1 6	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3½	11¾
A_3	Bath	S.W. Counties	1 5	1 0½
A	Batley ..	Yorkshire	1 6	1 1½
A_3	Bedford ..	E. Counties	1 5	1 0½
A_3	Berwick-on-Tweed	N.E. Coast	1 5	1 0½
A_3	Bewdley ..	Mid. Counties	1 5	1 0½
B_3	Bicester ..	S. Counties	1 2½	11
	Birkenhead ..	N.W. Counties	*1 7½	1 2½
A	Birmingham ..	Mid Counties	1 6	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5½	1 1½
A	Blackburn ..	N.W. Counties	1 6	1 1½
A	Blackpool ..	N.W. Counties	1 6	1 1½
A	Blyth	N.E. Coast	1 6	1 1½
B_1	Bognor ..	S. Counties	1 3½	11¾
A	Bolton	N.W. Counties	1 6	1 1½
A_3	Boston	Mid. Counties	1 4½	1 0½
A_3	Bournemouth ..	S. Counties	1 5	1 0½
B_3	Bovey Tracey	S.W. Counties	1 3	11½
A	Bradford ..	Yorkshire	1 6	1 1½
A_1	Brentwood ..	E. Counties	1 5½	1 1½
A	Bridgend ..	S. Wales & M.	1 6	1 1½
B	Bridgwater ..	S.W. Counties	1 4	1 0
A_1	Bridlington ..	Yorkshire	1 5½	1 1½
A	Brighouse ..	Yorkshire	1 6	1 1½
A_3	Brighton ..	S. Counties	1 5	1 0½
A	Bristol	S.W. Counties	1 6	1 1½
B	Brixham ..	S.W. Counties	1 3	11½
A	Bromsgrove ..	Mid. Counties	1 5	1 0½
B	Bromyard ..	Mid. Counties	1 2½	11
A	Burnley ..	N.W. Counties	1 6	1 1½
A	Bursiem ..	Mid. Counties	1 6	1 1½
A	Burton-on-Trent	Mid. Counties	1 6	1 1½
A	Bury	N.W. Counties	1 6	1 1½
A	Buxton ..	N.W. Counties	1 5½	1 1½
A_1	CAMBRIDGE ..	E. Counties	1 5½	1 1½
B_1	Canterbury ..	S. Counties	1 3½	11¾
A	Cardiff	S. Wales & M.	1 6	1 1½
A	Carlisle ..	N.W. Counties	1 6	1 1½
B	Carmarthen ..	S. Wales & M.	1 4	1 0
B	Carnarvon ..	N.W. Counties	1 4	1 0
A	Carnforth ..	N.W. Counties	1 6	1 1½
A	Castleford ..	Yorkshire	1 6	1 1½
A_3	Chatham ..	S. Counties	1 4½	1 0½
A	Chelmsford ..	E. Counties	1 4½	1 0½
A	Cheltenham ..	S.W. Counties	1 4½	1 0½
A	Chester	N.W. Counties	1 6	1 1½
A	Chesterfield ..	Mid. Counties	1 6	1 1½
B_1	Chichester ..	S. Counties	1 3½	11¾
A	Chorley	N.W. Counties	1 6	1 1½
B_1	Cirencester ..	S. Counties	1 3½	11¾
A	Cliftheroe ..	N.W. Counties	1 6	1 1½
A	Clydebank ..	Scotland	1 6	1 1½
A	Coalville ..	Mid. Counties	1 6	1 1½
A_3	Colchester ..	E. Counties	1 5	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_3	Colwyn Bay ..	N.W. Counties	1 5	1 0½
A_1	Consett ..	N.E. Coast	1 5½	1 1½
A_3	Conway ..	N.W. Counties	1 5	1 0½
A	Coventry ..	Mid. Counties	1 6	1 1½
A_3	Crewe	N.W. Counties	1 5	1 0½
A	Cumberland ..	N.W. Counties	1 4½	1 0½
A	DARLINGTON	N.E. Coast	1 6	1 1½
A	Darwen ..	N.W. Counties	1 6	1 1½
B_1	Deal	S. Counties	1 3½	11¾
A_3	Denbigh ..	N.W. Counties	1 4½	1 0½
A	Derby	Mid. Counties	1 6	1 1½
A	Dewsbury ..	Yorkshire	1 6	1 1½
B	Didcot ..	S. Counties	1 4	1 0
A	Doncaster ..	Yorkshire	1 6	1 1½
B_1	Dorchester ..	S.W. Counties	1 3½	11¾
A	Driffield ..	Yorkshire	1 4½	1 0½
A_3	Dreitwich ..	Mid. Counties	1 5	1 0½
A	Dudley ..	Mid. Counties	1 6	1 1½
A_2	Dumfries ..	Scotland	1 5½	1 1½
A	Dundee ..	Scotland	1 6	1 1½
A	Durham ..	N.E. Coast	1 6	1 1½
A_2	EASTBOURNE	S. Counties	1 5	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5½	1 1½
A	Edinburgh ..	Scotland	1 6	1 1½
A_1	E. Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 5½	1 1½
	Exeter	S.W. Counties	*1 5	1 0½
B	Exmouth ..	S.W. Counties	1 4	1 0
A_3	FELIXSTOWE	E. Counties	1 4½	1 0½
A	Filey	Yorkshire	1 4½	1 0½
A	Fleetwood ..	N.W. Counties	1 6	1 1½
B_1	Folkestone ..	S. Counties	1 3½	11¾
A	Frodsham ..	N.W. Counties	1 6	1 1½
B_2	Frome	S.W. Counties	1 3	11½
A	GATESHEAD	N.E. Coast	1 6	1 1½
B	Gillingham ..	S. Counties	1 4	1 0
A	Glasgow ..	Scotland	1 6½	1 2
A_2	Gloucester ..	S.W. Counties	1 5	1 0½
A_2	Goole	Yorkshire	1 5	1 0½
A_2	Gosport ..	S. Counties	1 5	1 0½
A_3	Grantham ..	Mid. Counties	1 4½	1 0½
A_1	Gravesend ..	S. Counties	1 5½	1 1½
A	Greenock ..	Scotland	*1 6	1 1½
A	Grimsby ..	Yorkshire	1 6	1 1½
B	Guildford ..	S. Counties	1 4	1 0
A	HALIFAX ..	Yorkshire	1 6	1 1½
A	Hanley	Mid. Counties	1 6	1 1½
A	Harrogate ..	Yorkshire	1 6	1 1½
A	Hartlepools ..	N.E. Coast	1 6	1 1½
B	Harwich ..	E. Counties	1 4	1 0
E_1	Hastings ..	S. Counties	1 3½	11¾
A_2	Hatfield ..	S. Counties	1 5	1 0½
B	Hereford ..	S.W. Counties	1 4	1 0
A_2	Hertford ..	E. Counties	1 5	1 0½
A	Heysham ..	N.W. Counties	1 6	1 1½
A	Howden ..	N.E. Coast	1 6	1 1½
A	Huddersfield ..	Yorkshire	1 6	1 1½
A	Hull	Yorkshire	1 6	1 1½
A	ILKLEY ..	Yorkshire	1 6	1 1½
A	Immingham ..	Mid. Counties	1 6	1 1½
A_2	Ipswich ..	E. Counties	1 5	1 0½
B_2	Isle of Wight ..	S. Counties	1 3	11¼
A	JARROW ..	N.E. Coast	1 6	1 1½
A	KEIGHLEY ..	Yorkshire	1 6	1 1½
A_3	Kendal ..	N.W. Counties	1 4½	1 0½
A_3	Keswick ..	N.W. Counties	1 4½	1 0½
A_1	Kettering ..	Mid. Counties	1 5½	1 1½
A_2	Kidderminster	Mid. Counties	1 5	1 0½
B_1	King's Lynn ..	E. Counties	1 3½	11¾
A	LANCASTER ..	N.W. Counties	1 6	1 1½
A_1	Leamington ..	Mid. Counties	1 5½	1 1½
A	Leeds	Yorkshire	1 6	1 1½
A	Leek	Mid. Counties	1 6	1 1½
A	Leicester ..	Mid. Counties	1 6	1 1½
A	Leigh	N.W. Counties	1 6	1 1½
B	Lewes	S. Counties	1 2½	11
A_2	Lichfield ..	Mid. Counties	1 5	1 0½
A	Lincoln	Mid. Counties	1 6	1 1½
	Liverpool ..	N.W. Counties	*1 7½	1 2½
A_2	Llandudno ..	N.W. Counties	1 5	1 0½
A	Llanelly ..	S. Wales & M.	1 6	1 1½
	London (12-miles radius)		1 7½	1 2½
	Do. (12-15 miles radius)		1 7	1 2¼
A	Long Eaton ..	Mid. Counties	1 6	1 1½
A	Loughborough	Mid. Counties	1 6	1 1½
A_1	Luton	E. Counties	1 5½	1 1¼
A	Lytham ..	N.W. Counties	1 6	1 1½
A_1	MACCLES-FIELD	N.W. Counties	1 5½	1 1½
A_2	Maidstone ..	S. Counties	1 4½	1 0½
A_2	Malvern ..	Mid. Counties	1 4½	1 0½
A	Manchester ..	N.W. Counties	1 6	1 1½
A	Mansfield ..	Mid. Counties	1 6	1 1½
B_1	Margate ..	S. Counties	1 3½	11¾
A	Matlock ..	Mid. Counties	1 4½	1 0½
A_1	Merthyr ..	S. Wales & M.	1 5½	1 1½
A	Middlesbrough	N. E. Coast	1 6	1 1½
A_2	Middlewich ..	N. W. Counties	1 5	1 0½
B_2	Minehead ..	S.W. Counties	1 3	11¼
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 3	11¼
A	Morecambe ..	N.W. Counties	1 6	1 1½
A_2	NANTWICH ..	N.W. Counties	1 5	1 0½
A	Neath	S. Wales & M.	1 6	1 1½
A	Nelson	N.W. Counties	1 6	1 1½
A	Newcastle ..	N.E. Coast	1 6	1 1½
A	Newport ..	S. Wales & M.	1 6	1 1½
A	Normanton ..	Yorkshire	1 6	1 1½
A	Northampton	Mid. Counties	1 6	1 1½
A	North Staffs ..	Mid. Counties	1 6	1 1½
A	North Shields ..	N.E. Coast	1 6	1 1½
A_2	Norwich ..	E. Counties	1 5½	1 1½
A	Nottingham ..	Mid. Counties	1 6	1 1½
A	Nuneaton ..	Mid. Counties	1 6	1 1½
A	OAKHAM ..	Mid. Counties	1 4½	1 0½
A	Oldham	N.W. Counties	1 6	1 1½
A_2	Oswestry ..	N.W. Counties	1 4½	1 0½
A_1	Oxford	S. Counties	1 5½	1 1½
A	PAISLEY ..	Scotland	*1	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2½	11
A	Perth	Scotland	*1 6	1 1½
A_1	Peterborough ..	E. Counties	1 5½	1 1½
A	Plymouth ..	S.W. Counties	*1 6	1 1½
A	Pontefract ..	Yorkshire	1 6	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5½	1 1½
A_2	Portsmouth ..	S. Counties	1 5	1 0½
A	Preston ..	N.W. Counties	1 6	1 1½
A	QUEENSFERRY	N.W. Counties	1 6	1 1½
A_1	READING ..	S. Counties	1 5	1 0½
B	Reigate ..	S. Counties	1 4	1 0
A	Retford ..	Mid. Counties	1 4½	1 0½
A_1	Rhondda Valley	S. Wales & M.	1 5½	1 1½
A	Ripon	Yorkshire	1 4½	1 0½
A	Rochdale ..	N.W. Counties	1 6	1 1½
B	Rochester ..	S. Counties	1 4	1 0
A_1	Ruabon ..	N.W. Counties	1 5½	1 1½
A	Rugby	Mid. Counties	1 6	1 1½
A_2	Rugeley ..	Mid. Counties	1 5	1 0½
A	Runcorn ..	N.W. Counties	1 6	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5½	1 1½
A	St. Helens ..	N.W. Counties	1 6	1 1½
B_2	Salisbury ..	S.W. Counties	1 3	11¼
A_1	Scarborough ..	Yorkshire	1 5½	1 1½
A	Scunthorpe ..	Mid. Counties	1 6	1 1½
A	Sheffield ..	Yorkshire	1 6	1 1½
A	Shipley ..	Yorkshire	1 6	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 5	1 0½
A_2	Skipton ..	Yorkshire	1 5	1 0½
A_2	Slough	S. Counties	1 5	1 0½
A_1	Solihull ..	Mid. Counties	1 5½	1 1½
A_2	Southampton	S. Counties	1 5	1 0½
A_1	Southend-on-Sea	E. Counties	1 5½	1 1½
A	Southport ..	N.W. Counties	1 6	1 1½
A	S. Shields ..	N.E. Coast	1 6	1 1½
A_1	Stafford ..	Mid. Counties	1 5½	1 1½
A	Stirling ..	Scotland	1 6½	1 2
A	Stockport ..	N.W. Counties	1 6	1 1½
A	Stockton-on-Tees	N.E. Coast	1 6	1 1½
A	Stoke-on-Trent	Mid. Counties	1 6	1 1½
B	Stroud	S.W. Counties	1 4	1 0
A	Sunderland ..	N.E. Coast	1 6	1 1½
A	Swansea ..	S. Wales & M.	1 6	1 1½
A	Swindon ..	S.W. Counties	1 4½	1 0½
A_1	TAMWORTH ..	N.W. Counties	1 5½	1 1½
B	Taunton ..	S.W. Counties	1 4	1 0
A	Teesside Dist. ..	N.E. Counties	1 6	1 1½
A_2	Teignmouth	S.W. Coast	1 5	1 0½
A	Todmorden ..	Yorkshire	1 6	1 1½
A_1	Torquay ..	S.W. Counties	1 5½	1 1½
B_2	Truro	S.W. Counties	1 3	11¼
A_2	Tunbridge Wells	S. Counties	1 4½	1 0½
A	Tunstall ..	Mid. Counties	1 6	1 1½
A	Tyne District ..	N.E. Coast	1 6	1 1½
A	WAKEFIELD	Yorkshire	1 6	1 1½
A	Walsall ..	Mid. Counties	1 6	1 1½
A	Warrington ..	N.W. Counties	1 6	1 1½
A_1	Warwick ..	Mid. Counties	1 5½	1 1½
A_1	Wellingborough	Mid. Counties	1 5½	1 1½
A	West Bromwich	Mid. Counties	1 6	1 1½
A_2	Weston-s.-Mare	W. Counties	1 5	1 0½
A_2	Whitby ..	Yorkshire	1 5	1 0½
A	Widnes ..	N.W. Counties	1 6	1 1½
A	Wigan ..	N.W. Counties	1 6	1 1½
B	Winchester ..	S. Counties	1 4	1 0
A_2	Windsor ..	S. Counties	1 5	1 0½
A	Wolverhampton	Mid. Counties	1 6	1 1½
A_2	Worcester ..	Mid. Counties	1 5	1 0½
A_3	Worksop ..	Yorkshire	1 4½	1 0½
A_1	Wrexham ..	N.W. Counties	1 5½	1 1½
A	Wycombe ..	S. Counties	1 4½	1 0½
B	YARMOUTH ..	E. Counties	1 4	1 0
B	Yeovil	S.W. Counties	1 4	1 0
A	York	Yorkshire	1 6	1 1½

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

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

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

WAGES

		s.	d.
Bricklayer	per hour	1	7½
Carpenter	"	1	7½
Joiner	"	1	7½
Machinist	"	1	8½
Mason (Banker)	"	1	7½
" (Fixer)	"	1	8½
Plumber	"	1	7½
Painter	"	1	6½
Paperhanger	"	1	8½
Glazier	"	1	7½
Slater	"	1	7½
Scaffolder	"	1	3½
Timberman	"	1	3½
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5½
Crane Driver	"	1	6½
Watchman	per week	2	10 0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼ Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

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

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

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

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

CARPENTER AND JOINER

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

Plywood, per ft. sup.

Thickness	¼" A	¼" B	¼" BB	⅜" A	⅜" B	⅜" BB	½" A	½" B	½" BB	¾" A	¾" B	¾" BB
Qualities	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch 60 × 48	4	2½	2	5	3	2½	7	5	4	8	6	5
Cheap Alder	–	2	1½	–	3½	2	–	–	–	–	–	–
Oregon Pine	–	2½	–	3	2½	–	4	3½	–	5	4½	–
Gaboon Mahogany	4	3½	–	5	4½	–	7	6½	–	8	7	–
Figured Oak	6½	5	–	7½	5½	–	10	8	0	1/–	9	–

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

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

	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10			
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9		
" 3"-11¼" long	"	7	9	1/3	1/8	3/–		
Long screws, 12"-23¾" long	"	11	1/3	2/2	2/10	5/3		
" " 3"M-1½" long	"	8	10	1/5	1/11	3/6		
Bends	"	8	11	1/7½	2/7½	5/2		
Springs not socketed	"	5	7	1/1½	1/11½	3/11		
Socket unions	"	2/–	3/–	5/6	6/9	10/–		
Elbows, square	"	10	1/1	1/6	2/2	4/3		
Tees	"	1/–	1/3	1/10	2/6	5/1		
Crosses	"	2/2	2/9	4/1	5/6	10/6		
Plain sockets and nipples	"	3	4	6	8	1/3		
Diminished sockets	"	4	6	9	1/–	2/–		
Flanges	"	9	1/–	1/4	1/9	2/9		
Caps	"	3½	5	8	1/–	2/–		
Backnuts	"	2	3	5	6	1/1		
Iron main cocks	"	1/6	2/3	4/2	5/4	11/6		
" with brass plugs	"	—	4/–	7/6	10/–	21/–		

Discounts:

TUBES.

	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.

	Per cent.		Per cent.
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ¼"	"	10	6
" " ⅜"	"	10	3
" " ½"	"	10	0
" " ⅝"	"	9	6
" " ¾"	"	9	6
" " ⅞"	"	9	6
" " 1"	"	9	6
" " 1¼"	"	9	6
" " 1½"	"	9	6
" " 1¾"	"	9	6
" " 2"	"	9	6

		s.	d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8	10
Shoes	each	2	0
Anti-splash shoes	"	4	6
Boots	"	3	0
Bends	"	2	7
" with access door	"	—	6
Heads	"	4	0
Swan-necks up to 9" offsets	"	3	9
Plinth bends, 4½" to 6"	"	3	9
Half-round rain-water gutters of ordinary thickness metal	F.R.	5	6
Stop ends	each	6	
Angles	"	1	7
Obtuse angles	"	2	0
Outlets	"	1	9

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	26	3
" drawn pipes	"	26	3
" soil pipe	"	26	3
" scrap	"	18	0
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

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

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	6	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			F.S.	2½
" " 26 oz.	"	"	"	3
Flemish, Arctic, Figures (white)*	"		"	7
Blazoned glasses	"		"	2 6
Reeded; Cross Reeded	"		"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"			6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2 0
Flashed opals (white and coloured)	"	1 0 and	2	0
¼" rough cast; rolled plate	"			5½
¼" wired cast; wired rolled	"			9½
¼" Georgian wired cast	"			11
¼" Polished plate, n/e 1 ft.	"	†10 to	‡1	1
" " 2	"	†1 2 "	‡1	4
" " 4	"	†2 3 "	‡2	6
" " 8	"	†2 9 "	‡3	2
" " 20	"	†3 7 "	‡4	2
" " 45	"	†3 11 "	‡4	7
" " 100	"	†5 0 "	‡5	7
Vita glass, sheet, n/e 1 ft.	"			1 0
" " " 2 ft.	"			1 3
" " " over 2 ft.	"			1 9
" " plate, n/e 1 ft.	"			1 6
" " " 2 ft.	"			3 0
" " " 5 ft.	"			4 0
" " " 7 ft.	"			5 0
" " " 15 ft.	"			6 0
" " " over 15 ft.	"			7 6
"Calorex" sheet 21 oz., and 32 oz.	"	2 6 and	3	6
" rough cast ¼" and ⅜"	"	8½ "	1	0
Putty, linseed oil	lb.			3

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

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting			14	0
Distemper, washable	cwt	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

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

EXCAVATOR AND CONCRETOR

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

DRAINLAYER

		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

	£ s. d.
Brickwork, Flettons in lime mortar . . . . . Per Rod	26 10 0
" " in cement "	27 12 6
" Stocks in cement "	34 0 0
" Blues in cement "	30 0 0
Extra only for circular on plan "	2 0 0
" backing to masonry "	1 10 0
" raising on old walls "	2 0 0
" underpinning "	5 10 0
Fair Face and pointing internally F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing "	8
" " " red brick facings and pointing "	11
" " " blue brick facings and pointing "	1 4
" " " glazed brick facings and pointing "	3 6
Tuck pointing "	7½
Weather pointing in cement "	3
Slate dampcourse "	10
Vertical dampcourse "	1 1

ASPHALTER

	s. d.
½″ Horizontal dampcourse Y.S.	4 6
½″ Vertical dampcourse "	6 9
½″ paving or flat "	4 0
1″ paving or flat "	5 6
1″ × 6″ skirting F.R.	1 0
Angle fillet "	2
Rounded angle "	2
Cesspools Each	5 0

MASON

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

SLATER AND TILER

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

CARPENTER AND JOINER

	£ s. d.
Flat boarded centering to concrete floors, including all strutting Sqr.	2 2 6
Shuttering to sides and soffits of beams F.S.	7
" to stanchions "	7
" to staircases "	1 6
Fir and fixing in wall plates, lintols, etc. F.C.	3 9
Fir framed in floors "	4 6
" " roofs "	6 6
" " trusses "	7 6
" " partitions "	8 6
½″ deal sawn boarding and fixing to joists Sqr.	1 14 6
1″ " " " " "	1 17 6
1½″ " " " " "	2 3 0
1″ × 2″ fir battening for Countess slating "	9 0
Do. for 4″ gauge tiling "	12 0
Stout feather-edged tilting fillet F.R.	4½
Patent inodorous felt, 1 ply Y.S.	2 3
" " " 2 " "	2 9
" " " 3 " "	3 3
Stout herringbone strutting to 9″ joists F.R.	10½
1″ deal gutter boards and bearers F.S.	1 2
1½″ " " " " "	1 6
2″ deal wrought rounded roll F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off Sqr.	2 1 0
1¼″ do. "	2 10 0
1½″ do. "	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall F.S.	1 6
1¼″ do. "	1 9

CARPENTER AND JOINER—*continued*

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

SMITH AND FOUNDER

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

PLUMBER

	£ s. d.
Milled lead and labour in flats cwt.	2 0 3
Do. in flashings "	2 3 9
Do. in covering to turrets "	2 9 3
Do. in soakers "	1 15 9
Labour to welted edge F.R.	3½
Open copper nailing "	3
Close " " "	4

	½″ s. d.	¾″ s. d.	1″ s. d.	1¼″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks "	—	—	—	—	—	5 6
Extra, only to bends Each	—	—	—	—	2 0	6 9
Do. to stop ends "	6½	8	9	11	1 0	—
Boiler screws and unions "	3 3	3 9	5 0	8 0	—	—
Lead traps "	—	—	—	6 3	8 9	—
Screw down bib valves "	6 9	9 6	11 0	—	—	—
Do. stop cocks "	7 0	9 6	12 6	—	—	—

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

PLASTERER AND TILING

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

GLAZIER

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

PAINTER

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

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REDALON LIQUID CEMENT RETARDER :

1. DESCRIPTION :

Redalon cement retarder is a chemical solution in spirit applied to timber or steel centreing to retard the setting of the surface cement skin formed on setting concrete, & thereby obtain a keying surface which is identical with the natural section of the mass concrete.

2. GRADES :

The liquid is manufactured in two grades according to the purpose of use :

GRADE. A. (colourless) For concrete surfaces where automatically exposed aggregate is to be the final finish (without the necessity of bush-hammering, etc.) This grade may also be used to bond new concrete with existing or previously poured work without hacking, etc.

GRADE. B. (coloured) For forming an automatic key on concrete work to be rendered, tiled, etc. without the necessity of hacking, etc.

3. ACTIVITY :

Under normal conditions Redalon is active up to four or five weeks, but, by setting more quickly, concrete in exposed positions or poured during hot weather would somewhat decrease this period.

If rapid hardening cement is incorporated in the mix, the Redalon liquid is active up to 7 or 10 days, with relative decrease as before under conditions of greater humidity.

APPLICATION :

Both grades are applied as a paint directly to the centreing, either before or after its erection as clean water will not wash off the coatings. When timber centreing is treated with Grade. B. liquid for the first time, two coats are required, but for subsequent applications one coat is sufficient.

CENTERING :

For obtaining an exposed aggregate finish with best results Tongued & Grooved centreing should be used, strongly made and close jointed to prevent leakage of the grout. Steel or wrought timber centreing is the most economical as regards covering capacity of the liquid. When timber centreing is treated with Redalon liquid it will not adhere to the concrete when struck & may be reused after brushing with a broom.

NOTE · When GRADE. B. is used, (for obtaining a key) ordinary butt shuttering is quite satisfactory.

TREATMENT OF THE CONCRETE :

(A.) POURING.

Moisture · The concrete mortar should not be poured too wet, nor should it be placed until the Redalon liquid on the centreing has been allowed to dry out for at least 10 to 15 minutes.

Scraping · The scraping of the moulds centreing, etc. whilst pouring the concrete causes uneven action of the Redalon liquid.

Direction · Concrete should always be directed away from the Redalon-treated surface by the use of sheet-iron, etc.

Texture · To ensure an even texture to exposed aggregate surface, the concrete should be poured in a continuous operation wherever possible in each section, and in lifts not higher than two to three feet.

(B.) TAMPING.

Due to the fact that immediately the concrete comes into contact with the centreing the Redalon liquid is dissolved, care should be taken not to scrape the centreing when tamping the mass.

(C.) STRIKING.

As cement does not set against a Redalon-treated surface, suction between concrete & centreing is reduced to a minimum. Centreing should be struck at normal times for R.C. work. With very long delay the usual setting of the surface concrete will occur.

(D.) BRUSHING.

Sequence · Immediately after the centreing has been struck the whole of the exposed surface concrete work should be brushed thoroughly with a wire brush.

Depth retarded · One eighth of an inch is the normal depth of penetration by both grades of Redalon liquid.

Setting · Upon the removal of the centreing the surface cement will harden by natural setting if keying surface is not required.

Texture · If the retarding action of the Redalon liquid has penetrated further below the surface of the concrete than is required, the brushing need only be taken to the required depth.

PLASTER, TILES, TERRAZZO, ETC.

The brushed surface of the concrete should be allowed to thoroughly dry out before the application of the plastering material in the usual manner.

CHEMICAL ACTION.

Redalon liquid has no deleterious effects upon the ultimate hardening action of the cement, nor upon the ultimate strength or quality of the concrete. Steel of any type is similarly immune from attack.

NOTE · For detailed specifications, covering capacities, costs, etc. see material on the reverse side of this sheet.

Information from The Adamite Company Limited.

INFORMATION SHEET · CONCRETE SURFACE-CEMENT RETARDER ·

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

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CONCRETE SURFACING

Product : "Redalon" Cement-retarding Liquid

Redalon cement-retarding liquid, the characteristics and uses of which are set out on this Sheet, has been produced to provide a method of obtaining an all-over surface key for plaster and renderings on concrete surfaces as distinct from the common but inadequate method of hacking. Hacking is usually merely a series of keys at relatively large intervals with large plain surfaces between, providing no adequate key for the plaster or rendering.

Redalon liquid, by retarding the setting of the outer skin of cement, so that it can be brushed off leaving a rough surface with aggregate projecting, gives a surface which may be likened to "a natural section" through concrete ; that is, it is a surface formed by the aggregate used, the roughness of the surface being determined by the amount of cement brushed away.

Specification :

The application of Redalon liquid to obtain a key in concrete surfaces for renderings or plaster : clean all centering carefully before use. Remove all dirt and old cement grout from the centering. Then coat the centering with Redalon Grade B. Use it in accordance with the instructions on the printed labels attached to the Redalon drums. Thoroughly brush with a stiff wire brush the whole of the exposed surface of concrete immediately after the centering is struck. Allow the concrete surface to become thoroughly dry before applying plastering material.

Covering Capacity :

Grade A : where shuttering is re-used two or three times ; 20 sq. yards per gallon.

Grade B : where shuttering is re-used two or three times the covering capacity averages 30 sq. yards per gallon including the first double coat ; but where shuttering is re-used six or seven times, the covering capacity is up to 40-45 sq. yards per gallon.

Estimated Economies :

The manufacturers estimate the nett saving on labour and material by using the liquid instead of hacking as follows :—

Cost, using Redalon liquid :

Material	5	pence per sq yd.
Application	1	,, ,, ,, ,,
Brushing Shuttering after use	1	,, ,, ,, ,,
Brushing Concrete ..	2	,, ,, ,, ,,
Total	9	,, ,, ,, ,,

Cost for Hacking :

Scraping Shuttering ..	2	pence per sq. yd.
Extra Cost of Striking ..	2	,, ,, ,, ,,
Cost of Hacking	12	,, ,, ,, ,,
Total	16	,, ,, ,, ,,

Saving by using Redalon, 7 pence per sq. yd.

Manufacturers : The Adamite Company, Ltd

Address : Manfield House, Strand, W.C.2

Telephone : Temple Bar 6233

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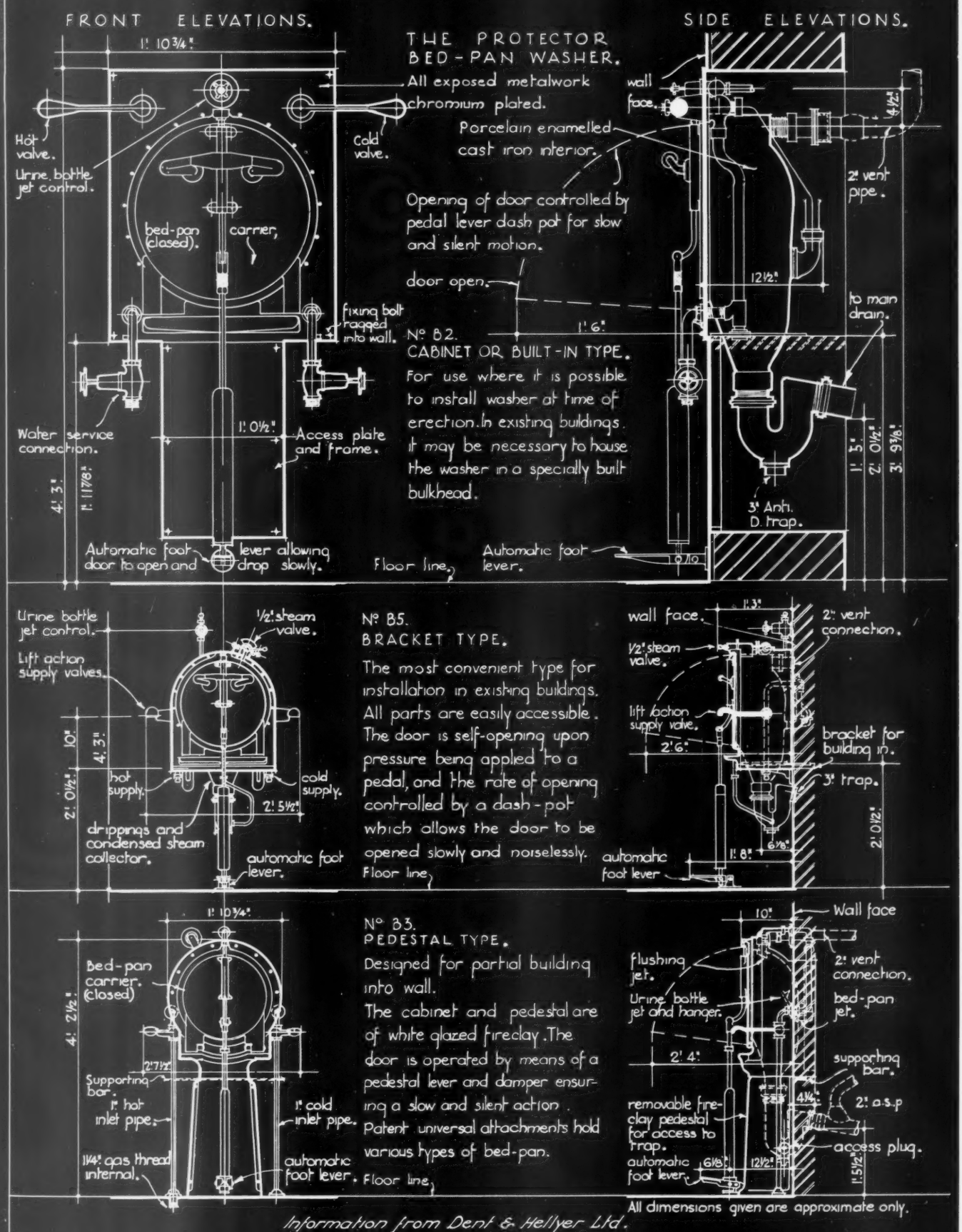

All dimensions given are approximate only.

Information from Dent & Hellyer Ltd.

INFORMATION SHEET · HOSPITAL EQUIPMENT · BED PAN WASHERS.

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

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HOSPITAL EQUIPMENT

Product : The Protector Bed-pan Washing Apparatus

The bed-pan washer detailed on this Sheet has been designed to fulfil the following principal objects.

(*a*) To provide one fitting complete in itself which will deal with each bed-pan completely in one operation.

(*b*) To provide a means of scouring and cleansing bed-pans.

(*c*) To reduce to a minimum the handling necessary and consequent offence caused.

(*d*) To provide the quickest means of dealing with numbers of bed-pans.

(*e*) To economise in the space usually occupied by this work.

(*f*) To deal similarly with urine-bottles.

Types :

As is shown and described on this Sheet, the bed-pan washer is made in three types :

No. B-2. Cabinet or built-in type for fitting flush with wall face.

No. B-3. Pedestal type for partially building-in.

No. B-5. Bracket type for fixing to wall.

Construction and operation :

No. B-2 is constructed with a white porcelain-enamelled cast iron self-cleansing interior in which are fitted the bed-pan flushing jet and patent combined self-cleansing urine-bottle flushing nozzle, and the top spray for cleansing the outside of the pan and the interior of the cabinet.

The door of the unit, on the back of which is placed the patent attachment to hold firmly in position various shapes of bed-pan, closes upwards, and when closed is almost flush with the metal wall-plate which forms the surround. In this frame are set the three control valves for hot flush, cold flush and urine-bottle jet.

The door opening and closing is controlled by a finely adjusted mechanism giving a smoothly checked and quiet action.

The lower part of the fitting consists of a metal wall-plate fixed flush with the wall. This serves as an inspection cover. In this type, all pipes, trap and connections are concealed behind the wall.

All exposed metal work forming the front of the fitting is chromium plated.

No. B-3. In this type, the cabinet and the pedestal are of white glazed fireclay. It is designed for partially building into wall. The jets and door are the same as described in the built-in type.

No. B-5. This type is not built in at all, being fixed upon the wall. It is particularly convenient for installation in existing buildings, and where provision cannot be made for the built-in type. A stainless steel removable sheath completely covers the sides of the washer, but in other respects is similar in action and design to the No. B-2.

Low pressure steam :

Where a low pressure steam supply is available, a jet is provided in the interior of the fitting. A patented dual safety locking device is incorporated in the control valve.

Prices.

No. B-2, with hot and cold flush . .	£48
No. B-2, with steam valve . .	£54
No. B-3, with hot and cold flush . .	£48
No. B-5, with hot and cold flush . .	£48
No. B-5, with steam valve . .	£54

Manufacturers : Dent and Hellyer, Ld.

Address : 35, Red Lion Square, Holborn, W.C.1

Telephone : Holborn 6415 (four lines)

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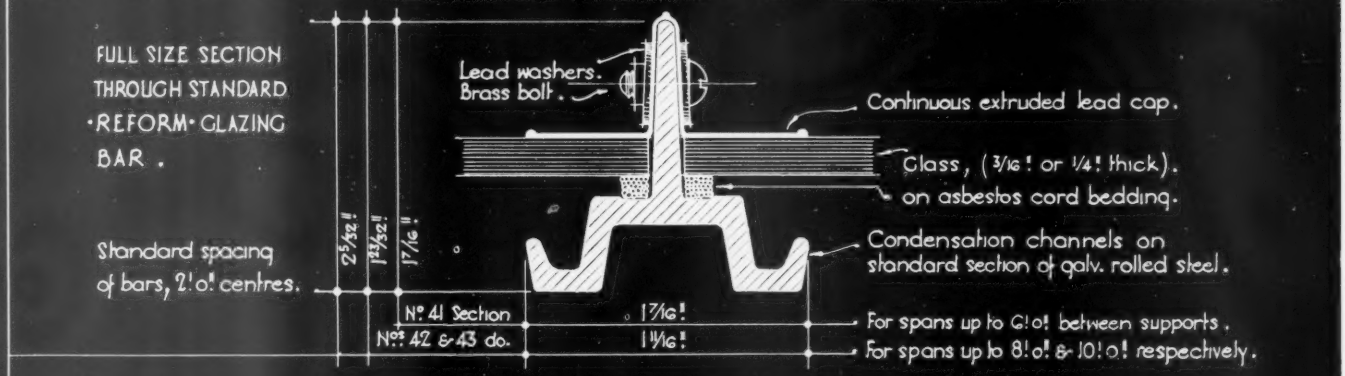
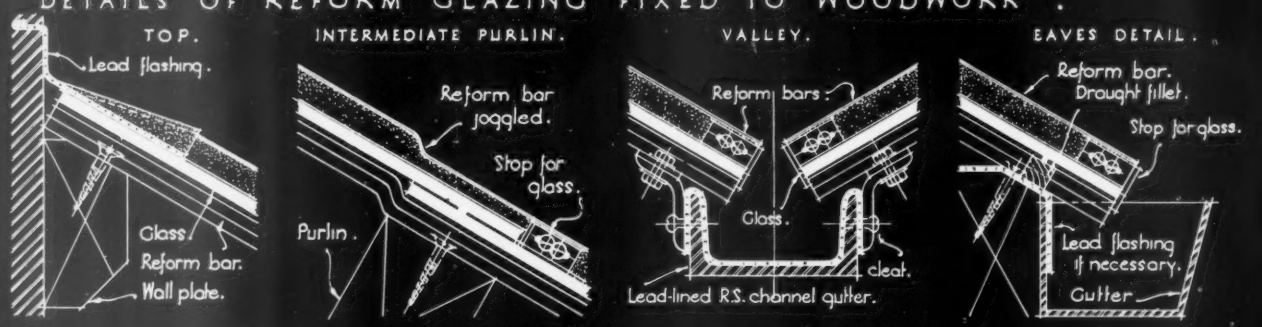
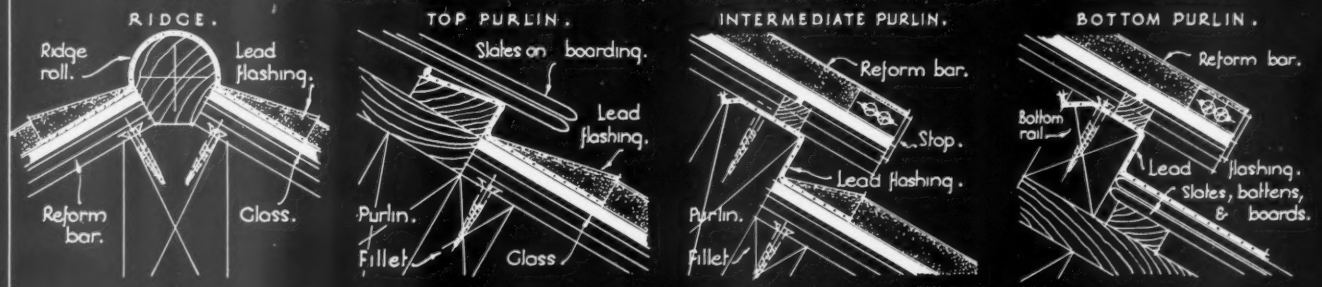


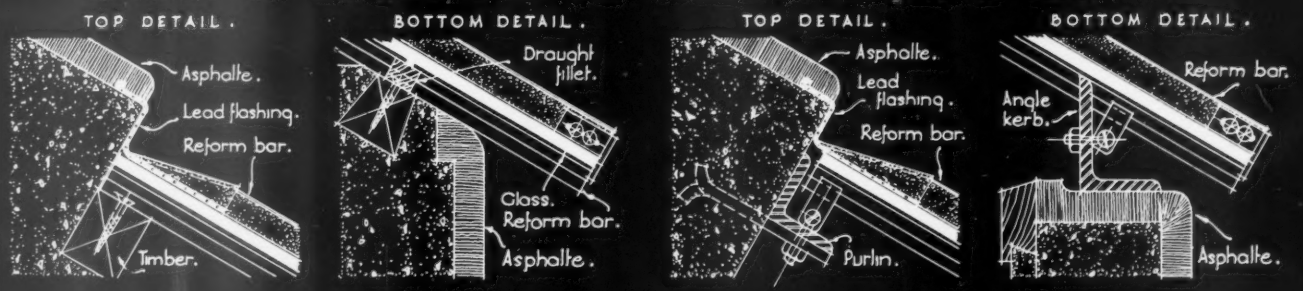
DETAILS OF REFORM GLAZING FIXED TO WOODWORK :



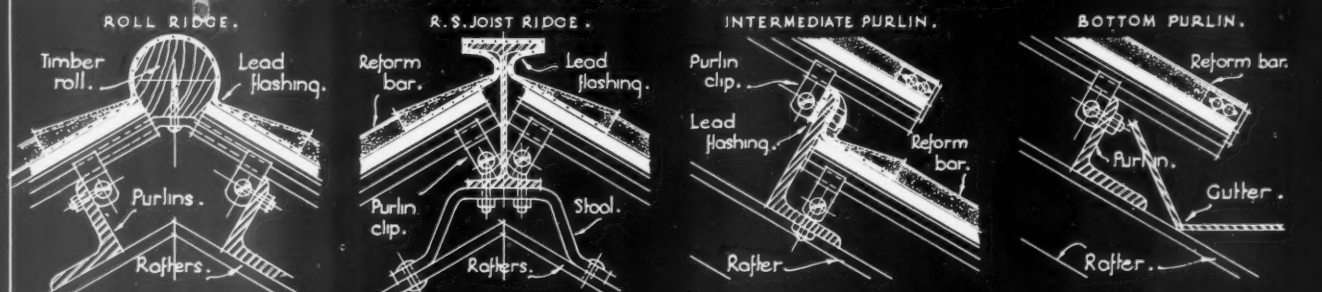
DETAILS OF REFORM GLAZING IN SLATED ROOF :



DETAILS OF REFORM GLAZING FIXED IN CONCRETE ROOF :



DETAILS OF REFORM GLAZING WITH STEELWORK :



Information from Haywards Ltd.

INFORMATION SHEET · THE FIXING AND FLASHING OF PUTTYLESS ROOF GLAZING.

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

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ROOF GLAZING

Product : "Reform" Puttyless Roof Glazing

The Glazing Bar :

The Reform glazing bar is made in three standard sizes as shown on this Sheet, and is a rolled section of British steel which is especially treated and galvanised. The galvanising is carried out after all preparatory work has been done, thus reducing the possibility of deterioration to a minimum.

Condensation Channels :

The condensation channels are formed in the steel section itself and are of adequate size while being of the shallow shape most suitable for the purpose.

The Stem :

The stem of the bar projects up well above the glazing, and is therefore capable of carrying planks, etc., without danger to the glass, when required for cleaning purposes.

Lead Caps :

The lead cap is an extruded section worked by the glazier to a tight fit over the stem of glazing bar and down over the edges of the glass, giving approximately 1 in. of cover on each side of the bar. Whilst this lead cap affords valuable protection to the stem of the bar in addition to its galvanised surface, it is not an essential feature of Reform glazing, as perfect weathering is guaranteed in all cases whether bars are lead capped or not. Where cost is the first consideration, this capping may therefore be safely omitted.

Glass for puttyless glazing should not be less than $\frac{3}{16}$ in. thick and is bedded on stout asbestos cord throughout the full length of the bar, the cord being set in a slight recess in the section of the bar.

Spacing of Bars :

The standard spacing of bars is approximately 2 ft. centre to centre according to the overall length of the run. This spacing, however, may be reduced if required, but a reduction in the spacing increases the amount of glazing bar required and hence the cost also.

Length of Bars :

Where particularly desired, bars can be produced in lengths up to about 22 ft., but in such cases intermediate supports are necessary, over which the bars are joggled or cranked to allow glass laps at these points.

The advantages of joggling bars are :

1. The glazing being on one plane and in continuous lengths of bars, lead flashings at intermediate supports are unnecessary.

2. The intermediate supports are designed to suit one bar only and not two or more, as in the case of stepped glazing.

3. Increased transmission of light.

In most cases, lead flashings are essential at top, bottom and sides of glazing, and it is usual to employ lead of 4 or 5 lb. per foot super. Lead should be dressed on to glass at least 3 in. at the top and 1 in. at the extreme ends of the glazing.

On this Sheet are given a series of details showing the fixing and flashing of roof glazing in several different forms of construction ; these details are of typical cases ; when special conditions are met with the Company's engineers should be consulted.

Manufacturers : Haywards, Ltd.
Address : Union Street, Borough, S.E.1
Telephone : Waterloo 6035 (five lines)

Glasgow Office : 141 West Regent Street, Glasgow
Telephone : Douglas 1577

Manchester Office : 32 King Street East, Manchester
Telephone : City 4022

Birmingham Office : 121 Colmore Road, Birmingham
Telephone : Central 5242