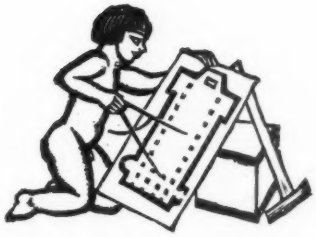
"EVERYDAY THINGS"

R. I. B. A. EXHIBITION

ON Wednesday, February 19, the "Everyday Things" Exhibition was opened at the R.I.B.A. by Lord Bessborough. All the exhibits were selected by a representative committee of architects under the chairmanship of Professor H. S. Goodhart-Rendel. The photograph shows Lord and Lady Bessborough with Mr. Percy Thomas, P.R.I.B.A.

SCHEDULED AS A NATIONAL MONUMENT

Pulteney Bridge at Bath, one of the few bridges in Europe which still carry buildings, has come under the protection of the Office of Works. The bridge was built by Robert Adam in 1770 for his patron Earl Pulteney.



TOWN HALLS

THE first section of the JOURNAL's library of planning, which begins in this issue, is concerned with town halls.

Most architects will probably agree that far too little data, in the form of illustrations, diagrams or notes, is available for reference upon the planning of specialized buildings. But town halls might well seem one of the exceptions.

Municipal buildings have been the subject of open competitions far more frequently than any other kind of building, and very bulky files of winning designs are no doubt in existence. It might therefore have appeared reasonable if the first planning section had dealt with some other specialized building type.

Town halls, however, have been selected for this special reason of partial familiarity ; because the particular point of view of the planning section will be additionally emphasized by its dealing with a subject made of universal interest by the competition system. Indeed, we go further. We believe that the " town hall competition " has been responsible, through the rigidity, artificiality and conservatism it has caused in planning, for much of the inconvenient and thoughtless planning prevalent today.

Let us see if the briefest historical survey supports this view.

In the year 1800 the vastly larger mass of the buildings throughout the country had plan forms which are now only of sociological interest. Of " cell " type, or aggregations of cells, these plans were neither designed to any reasoned relationship of parts nor were they the basis of any very carefully conceived elevational treatment.

Of the minority, the houses of the rich, a few assembly rooms, courthouses, and university buildings had plans conceived almost wholly for purposes of internal and external effect. Only a minute number of buildings were planned to achieve practical usefulness ; such as jails, churches and theatres. Architects were then decorative experts.

Soon the life of the country began to be divided into two totally distinct parts : the industrial and the non-industrial. Nineteenth-century architecture, devoid of comprehension of planning for practical usefulness, diverged from industry and by so doing dug its own grave. For all architecture depends for its greatness upon being closely interwoven with the life of its time.

The stages of decline were, in outline, simple. The romanticism of Walpole, popularized by Walter Scott, was finally adopted by Ruskin as an anti-industrial battle-cry. The more cultured classes saw the evils of unregulated industrialism, but, instead of setting out to make a well-regulated industrialism, they attempted to banish the bogy by all the arts of escape ; the architects aided and abetted. Houses became castles, monasteries and ruins ; gardens became wildernesses and scenic railways and planning turned to bedlam.

Then, about the middle of the century, industry needed architects for the first time. New industrial towns, Bolton, Leeds and Halifax, found they needed buildings to house their new city corporations. For the first time for many years architects were needed for something connected with the life of their times. The results were logical.

Twisted to fit an exterior of spires, gargoyles and assorted rose-windows, the plans of these town halls were destitute of all relationship to the work that was to be done within them. For seventy years they have undermined the health and impaired the efficiency of those who administer local government.

Improvement came slowly. The architectural profession became more conscious of real social needs, and the Beaux-Arts system of France assisted the rediscovery of a more rational planning. A circulation was imposed upon the high Renaissance conception of a building as a symmetrical composition of mass and void both within and without.

By 1900 competition plans had become a battle between the picturesque and the Beaux-Arts, and the Beaux-Arts plans were winning easily. Dignity and pomp were still regarded as more important than the achievement of healthy and convenient working conditions, and neo-Renaissance symmetry is one of the easiest recipes for dignity and pomp.

Further progress in planning has been slow, and slowest of all in town halls. New constructional methods have freed architects from the problems of weight-carrying masses on plan. The huge increases in the numbers of departments and staff of local administrations would appear to call for such reconsiderations of town hall planning as the new planning needs of cinemas, hospitals, and some flat-blocks have already brought about in their building types.

Town hall planning, however, has not developed. The views of promoters, of assessors, the competition system or sheer conservatism have kept their planning hesitating between neo-classicism and freedom, symmetrical pomp and convenience, decorative massing and lightness. Planning has become a paper matter.

Our first planning section deals with the subject of town halls in the hope that a new review of existing information, the best existing practice, and the opinions of those who work within them may assist the planning of the specialized building type most known to architects to find a new sense of direction.

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NOTES & TOPICS

EXPENDITURE FOR DELIGHT

MR. FRANK DOBSON, in his paper at the R.I.B.A., has called us to task for not understanding sculpture in relation to architecture, deploring, amongst other things, that so many of our buildings are deformed with re-hashes of Greek and Renaissance ornament.

*

Mr. Eric Gill agreed, though from an opposite approach: maintaining that imitation façades don't deserve more than imitation sculpture.

*

Both these eminent sculptors asked for more thought about the possibilities of sculpture in relation to modern buildings.

*

Having an insatiable interest in sculpture myself I have talked to many fellow architects on the subject, and am driven to the conclusion that many otherwise quite intelligent men are frightened to death of sculpture, do not understand in the least what sculptors are trying to do, and above all think the whole business costly.

*

But there are, oddly enough, several buildings where the intelligent use of sculpture has resulted in a *saving* of total cost. One of these buildings is in London, where the architect, by having some concentrated sculptural interest over his doors, was able to use by way of background a much cheaper brick. Another example was continental—here the architect had relieved a huge concrete flank wall by one concentrated spot of coloured sculpture which cost less than the initial cost of painting the flank wall, let alone its maintenance.

*

We spend a certain percentage on each building purely for delight, and it seems to me that any architect who wants sculpture has merely to use this expenditure more intelligently.

THINGS TO COME

With surprising ease I found my way to the new Wells film last Saturday, and was very considerably impressed by it. More impressed, I must confess, by the production and the development of the story than by the architecture or the aeroplanes of the future.

*

From the architectural point of view somebody must have had a lot of fun adapting from Hugh Ferriss, Norman Bel Geddes and one or two others: the result occasionally showing the applied art which we are all supposed to dislike so much nowadays. And I am quite convinced that I saw Mr. Oliver Hill's famous glass bed still in active use in about A.D. 2070. Or was the owner a collector of antiques?

*

And the aeroplanes seemed only about five years ahead instead of 150.

*

All this is picking a rather small kind of hole, I know; *Things To Come* is what may be going to happen to you and me, not a treatise on design in the future. And it's a good film which very definitely ought to be seen by architects.

LONDON'S LARGEST REHOUSING SCHEME

The L.C.C. is proposing to acquire compulsorily about 64 acres of land in Stoke Newington for housing purposes.

*

On looking through the housing statistics issued last July the largest scheme I could find was only about one-sixth of the size of this, which is certainly getting nearer to the large scale operations which have been talked about for some years. I hope that they will go on getting larger and larger.

*

I notice that part of this 64 acres has been re-developed with small houses and is included in the area of land to be acquired with the object of obviating town-planning difficulties.

*

Does this mean that the L.C.C. is proposing to re-develop this area in a way it has refused to let others do? I hope not, for it would seem to be hardly fair for the L.C.C. to be the exception that proves its own rule.

BAINBRIDGE COPNALL

One of the larger pieces of decorative work for the "Queen Mary" has been done by Bainbridge Copnall, whose work on the R.I.B.A. building is now a well-established feature of the Portland Place scene.

*

I reproduce a photograph of one of the fourteen panels he has carved in polished lime wood for the first-class restaurant—on ten panels there is a very scholarly little history of shipping from the earliest times and so far into the future as the building of the "Queen Mary's" yet-unborn sister ship, and on the other four the conventional "air," "sea," "storm" and "calm."

*

I saw these during the carving and in the finished state just before they were sent off to Glasgow, and they struck me as including some of the best work Bainbridge Copnall has done, especially in the single figures and in the longest

The History of Shipping: three generations of the Cunard Line—"Great Eastern," "Mauretania," and "Queen Mary." One of fourteen decorative panels executed by Bainbridge Copnall for the first-class restaurant on the "Queen Mary." The panels are carved in polished lime wood.

panels, into which he had put a great amount of characteristic work.

TYNESIDE LOCAL GOVERNMENT

One of the proposals before the Royal Commission on Local Government for Tyneside is to combine into one city all the towns on both sides of the Tyne from the mouth of the river up to and including both Newcastle-upon-Tyne and Gateshead. As outlined, the town would probably have a population greater than that of Birmingham and would be the second largest city in England.

*

It would also be unique in having the whole navigable portion of a large river within its boundaries.

*

I do not suppose for one moment that such a proposal will ever materialize, but there is clearly a case for some local government revision on Tyneside, as both sides of the river are more or less built up from the sea for miles inland and it is impossible to tell where one place ends and the next begins.

TELEVISION

Some weeks ago I mentioned the possibilities of television as a means of informing the general public of matters architectural.

*

Since then I have seen some television transmissions—I have televised—and am impressed more than ever with television's coming power to spread worth-while information.

*

Amusement too; for I have found that the disturbances one occasionally hears in the ordinary broadcasts have their counterpart in occasional distortions of the images cast on the screen. A tenor, caught in these disturbances, may appear momentarily to sing from the ear, a dancer to melt into the most astounding acrobatics.

*

I would like to see some of our city palaces rock with atmospheric laughter, the Thames leap over our new bridges, or even the towers of Wembley Stadium leave their anchor bolts and take a mighty kick at some Cup Final ball.

CHECK FOR EFFICIENCY

Making a journey the other day from King's Cross to Westminster by Underground, I had my ticket clipped three times. A thorough check has been taken not only of passenger numbers, but of their movements at interchange stations.

*

This reminded me of a survey I made some years ago of a timber merchant's mills and yards, for the purpose of checking the circulation each day of their wares and subsequently preparing a more economic and efficient plan.

*

There must, in this country alone, be hundreds of managing directors who have never seen a large scale plan of their works, with all circulations, services and machines clearly indicated. There must be hundreds of factories which have been added to piecemeal over a course of years, which are working at real financial disadvantage through lack of any comprehensive grasp of their plan.

*

The London transport check is going to cost a fabulous sum, and my timber merchant expended a pretty penny . . . . the real point is that such expenditure *pays*.

NEWS

One usually finds something of architectural or town-planning interest on the home news page of *The Times*, but on Saturday there was a perfect glut of it. Some of the headings were:

Planning England of the Future,
New Road for Kent,
London as a Health Resort,
Architecture of Piccadilly,
Forest Planting,
Falling Tile on Child's Head,
New Trog Pond at the Zoo,
Kings Cross Underground Station,

not to mention foundation stone laying, sale of Raeburn's pictures, and an advertisement for a professor of fine art.

*

I never realized that a day's building, town planning, and a touch of art would be thought worth such a lot of space.

ASTRAGAL

During publication of the Town Hall series the Working Details will be published each fortnight, alternating with the fully illustrated Town Hall schemes. The Working Details are therefore held over this week, but will be included in our issue for March 5.

NEWS

POINTS FROM THIS ISSUE

A. T. O.

A meeting of the Architects', and Technicians' Organization is to be held in the R.I.B.A., building, 66, Portland Place, W.1, on Tuesday, March 3, at 8.15 p.m., when Sir E. D. Simon will lecture on "Housing the Community." (Admission free.)

HOUSING

On Tuesday last the London County Council discussed a proposal for the compulsory acquisition of a site of sixty-four acres in Stoke Newington for housing purposes. The cost of the property and its partial development is estimated at £750,000 Following are some extracts from a report on the matter presented by the Housing and Public Health Committee: "In view of the magnitude of the operations of the Council contemplated under the Housing Acts, it is desirable that every available opportunity should be taken of securing fresh sites in the County of London for the erection of working-class dwellings, particularly having regard to the amount of accommodation that will be required for the relief of overcrowding. In this connection our attention has been drawn to a site about 64 acres in extent to the north and south of Seven Sisters Road, Stoke Newington, which, in our view, is suitable for redevelopment on a large scale as a housing estate. It is at present occupied by about 185 properties, a number of which are old houses standing in large gardens. It is proposed to proceed by means of a compulsory purchase order under Part III of the Housing Act, 1925, as modified by the Housing Acts, 1930 and 1935. At this stage we ask the Council to approve an estimate of liability of £750,000 for the acquisition, clearance and partial development of the site."

THE ARCHITECTS' DIARY

Thursday, February 27

R.I.B.A., 66 *Portland Place, W.1. Exhibition of "Everyday Things." The Exhibition is open free to the public until March 14, 10 a.m. to 8 p.m. (Saturdays 10 a.m. to 5 p.m.)*

BUILDING CENTRE, 158 *New Bond Street, W.1. Exhibition of drawings, models and photographs of buildings erected from the designs of women architects. Until February 29, 10 a.m. to 6 p.m.*

INTERNATIONAL EXHIBITION OF CHINESE ART. *At the Royal Academy, Burlington House, Piccadilly, W.1. 9.30 a.m. to 7 p.m. (Thursdays 10 a.m.).*

INSTITUTION OF STRUCTURAL ENGINEERS, 10 *Upper Belgrave Street, S.W.1. "The Strengthening of Weak Bridges." By C. S. Chettoe. 6.30 p.m.*

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1. "The Excavations at Maiden Castle." By Dr. R. E. M. Wheeler, Mrs. Wheeler and Lt.-Col. C. E. Drew. 8.30 p.m.*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "Furniture: New Things in Plywood." By C. A. Hindley. 7.30 p.m.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Exhibition of Present-day Calligraphy and Illumination. 10.30 a.m. to 7.30 p.m. (Saturdays 10 a.m. to 1 p.m.).*

Monday, March 2

R.I.B.A., 66 *Portland Place, W.1. Social Evening. 8.30 p.m.*

HOUSING CENTRE, 13 *Suffolk Street, S.W.1. "Housing in Relation to Unemployment." By Lord Phillimore. 8 p.m.*

WOMEN'S GAS COUNCIL. *At the Millicent Fawcett Hall, 46 Tufton Street, S.W.1. Conference on Housing. Speakers: Sir Percy Alden and Miss Elizabeth Denby. 3.15 p.m.*

HERTS. C.C. OFFICES

The Hertfordshire County Council has approved an estimated expenditure of £203,727 for the erection of its proposed Central Offices at Hertford. This figure, which excludes the provision of fittings and furniture is made up as follows: erection of buildings, £186,927; architects' fees, £11,000; quantity surveyors' fees, £4,800; clerk of work's salary, £1,000. The offices will be built on the Leahoe Estate, Hertford, an estate comprising about 30 acres which the county council has bought for £10,000. The architects for the scheme are Messrs. James, Bywaters and Rowland Pierce, whose design was placed first in an open competition held last year.

SCOTTISH BUILDING EXHIBITION

The eleventh annual Scottish National Building Exhibition was opened yesterday at Edinburgh, and will continue until March 7.

DONCASTER STATION

Doncaster Station is to be reconstructed by the L.N.E.R. at an estimated cost of £250,000.

CRIME IN PICCADILLY

"The most abominable crime against architectural decency committed in the West End during recent years" was Mr. H. S. Goodhart-Rendel's description to the London Society last week of the conversion into shops of the lower part of the building of the Institute of Painters in Water Colours.

He thought the Ritz the best piece of architecture in Piccadilly and Thomas Verity's Criterion "a document as precious as almost any in London."

PLAN FOR THE PEAK

The Minister of Health has approved a resolution of the Peak Joint Planning Committee to prepare a scheme for nearly 220,000 acres, including several well-known places of natural beauty.

£300,000 STATION IMPROVEMENT

The London Passenger Transport Board is to spend £300,000 on the reconstruction of King's Cross Underground Station. A central ticket hall similar to that at the new Leicester Square Station will replace the three present halls and a complex of passages.

NORFOLK AND NORWICH ASSOCIATION OF ARCHITECTS

Mr. Percy Thomas, P.R.I.B.A., speaking at the annual dinner of the above association, held recently at Norwich, said that the function of an architect was not simply to draw plans. He was convinced the architect could do much more. He could be a great factor in the life of our country, either improving business premises through his skill of planning or helping in things such as slum clearance schemes. Propaganda was necessary to get people to realize what it meant to have really beautiful articles—even down to cups and saucers, as was the case in Pompeii of old. He hoped architects could assist in bringing that about in this country.

One hopeful sign today was the great spread of open competition. He was confident that the new Norwich civic building would be one more of those which justified the appointment of an architect by open competition. Practically every town of any size in Great Britain when it was going to build a building of major importance now adopted this system.

FOREST PRODUCTS RESEARCH LABORATORY

It is proposed to hold a "summer school" lasting a week at the Forest Products Research Laboratory, Princes Risborough, Bucks., on the same lines as that held in September, 1935. One of the objects of the course is to give those attending it an opportunity of seeing in some detail the nature of the work done at the laboratory and the methods by which the investigations are carried out. The other is to demonstrate the direct relation of research to industry in the timber world.

The course will be a general one only and will open on Monday, August 31, with a field excursion, probably to the Duke of Bedford's forest estate at Woburn. The days Tuesday to Friday will be occupied with work in two sections of the laboratory per day, consisting of a short lecture followed by demonstrations of methods used in the laboratory, occupying about three hours in each section. There will also be some extra

lectures on special phases of work. The final Saturday morning will be left free for further visits to sections.

Attendance at the course will have to be limited to thirty-five persons. No fees are charged for the course. Applications to attend the course should reach the Director as early as possible, and in any case not later than June 1.

R.I.B.A. INTERNATIONAL EXHIBITION

The R.I.B.A. International Exhibition of Architecture will be held at Ipswich from March 18 to April 18.

NORTH BRITISH ARCHITECTURAL STUDENTS' ASSOCIATION

The third annual Congress of the above Association will be held at Newcastle-upon-Tyne on Friday and Saturday, February 28 and 29. We are informed by the Secretary of the Association that all members of the schools of architecture and/or allied societies are invited to attend as delegates. Full information is obtainable from the Secretary, N.B.A.S.A., the School of Architecture, Armstrong College, Newcastle-upon-Tyne, 2.

NATIONAL HOUSING AND TOWN PLANNING COUNCIL

The above Council has arranged to hold a series of Regional Housing and Town Planning Conferences of Local Authorities during the summer months at 11 different centres in England and Wales (viz., London, Manchester, Leeds, Newcastle-upon-Tyne, Birmingham, Nottingham, Bath, Exeter, Norwich, Carnarvon, Cardiff).

OBITUARY

J. R. WIGFULL

We regret to record the death of Mr. James Ragg Wigfull, F.R.I.B.A., F.S.A., of Sheffield.

Born in 1864, Mr. Wigfull was educated at Nether Edge College, Doncaster, and at Sheffield School of Art. He served his articles with Messrs. Flockton and Gibbs and started practice in Sheffield in 1892.

Mr. Wigfull was reponsible for many important buildings, including the extension to the Sheffield School of Art, the Hotel Portland, Chesterfield, the Foxhill Infant School, Unity Church, Crookesmoor, and the maternity hospital for the Ecclesall Board of Guardians. He also executed designs for many residential houses in Sheffield, Worksop and North Derbyshire, and a large number of hotels in Sheffield, Rotherham and Chesterfield.

He became a member of the Sheffield, South Yorkshire and District Society of Architects and Surveyors at its inception and had served as a member of the Council. He had also held the offices of president, hon. secretary and treasurer of the Society.

R. G. L. BURN

We regret to record the death of Mr. Robert G. L. Burn, Founder and Managing Director (until his retirement four years ago) of Messrs. Burn Brothers (London), Ltd.

R. I. B. A.

SCULPTURE

Following are some extracts from a paper entitled "Sculpture," read by Mr. Frank Dobson at a general meeting of the R.I.B.A. on Monday night.

I SUPPOSE the history of the beginnings of sculpture is pretty much the same as our individual experience of it; man first began to fashion things out of mud and clay in the same way that you and I did when we first began to model. You remember the sort of thing—a roly-poly for a body, a round ball for the head and four more roly-polies for the arms and legs. All primitive sculpture of which we have record begins this way: Sumerian, Hittite, Egyptian, Chinese, Greek, Negro, etc. There may be slight racial differences, but in the main they follow the same simple forms and the interesting fact that stands out is that we do not find any attempt at what we call realism.

Having begun by modelling (the result of which man soon found he could make permanent in some degree by sun-drying or baking), I suppose he began to look about for some more immediately permanent material. This is probably how he first came to carve in wood. If one examines the work of primitive races, negro or South Sea Island sculpture, one is able to see something of the way in which he tackled this material. We find already that the material in which he is working is beginning to influence the style and design: in nearly all wood sculpture the angle of cleavage (I mean by this the way in which the wood splits, for obviously with such primitive tools as he had at his disposal there would be just as much splitting as carving) is in most cases a vertical one down the grain. If one is carving part of a tree bole the easiest way to get rid of what one doesn't want is to split it down vertically; this, I think, is responsible for much of the rectilinear form which we find in the carvings of such people.

With regard to design, a sculptor, in the process of direct carving, is bound to make observation and make use of such apparent accidents as occur: it seems to me that much of the geometrical arrangement in these works is the direct sequence of this. Anyway, throughout all wood carvings of these primitive races the basic form is largely rectilinear and the design a system of almost true angles. Of course, when he comes to the refinement of finish, surface, etc., he loses the edges of the angles by a process of rubbing and smoothing, and the blunt squareness which suggests volume is then produced. It is my belief that in the transition from wood to stone these primitive sculptors carried this tradition through.

In all the early stone carvings one observes a similar blunt squareness; Sumerian, Hittite, Egyptian, Archaic Greek and Chinese works have this quality, and the design is usually based on a system of simple angles. Of course, some aspects of the design must have been dictated by symbolism and by the demands of their clients—that is, the rulers and priests—and also by such purposes as the sculpture may have served in relation to architecture. But on the whole I think it was the outcome of the material and the implements which were used. Later, as the sculptor becomes more expert and his implements more perfect, there is a tendency to lose the simple austerity, and so we find the sculptor becoming increasingly interested in realism, until at last his product is merely slavish representation of a type of physical perfection.

The æsthetic impulse to make something within the limits of the material almost completely disappears, and instead of austerely and sometimes beautifully organized arrangements of form, the sculptor is excited to represent violent action and minute anatomical exactness. The more expert the sculptor the more easily he is able to force the material to something which is quite obviously against its nature.

I have tried to show, by what I have said so far, that the tradition of sculpture was an interpretation of Nature dictated partly by the material which the artist used and partly by his æsthetic consciousness. There are, in these early forms of art, some distortions which are the outcome of the artist's lack of ability to cope with his material, but one usually finds that he has somehow used these distortions and simplifications so that they make a definite contribution to his final design. This leads me to the conclusion that the basic principle of the art of sculpture is the assembling of a series of forms in three dimensions—that is, the placing together of a number of solid geometrical shapes in such a way that they become a beautiful whole when observed from any point of view.

Here I must tell you that I have tried hundreds of times to make clear what I have just said, and as far as I know have never yet succeeded. I think that I can probably better explain by describing something of the way in which I work. I first get an idea for a design, usually by making a series of sketchy drawings, and having found one point of view among those drawings which is a good design, I proceed to make drawings of what I imagine the other sides of the conception look like. Now in order to make each of these points of view compose correctly I find that I have to change the shape of the individual forms which make up the composition, and this process of distortion goes on right through the whole job. After the drawings I usually make small clay or wax sketches; here again the process of simplification and distortion is carried farther. For instance, if I find that by lengthening and thickening a limb I can make more perfect my design, I do it; in fact, all the way through there is a series of adjustments which are related to the design rather than to the likeness of the human figure. The same applies when one is working direct into the stone; here the nature of the material asserts itself. Working in stone one is conscious

of the necessity of keeping the shapes big and simple. The distortions somehow begin to take their place more easily, and at the same time there is a demand that the rhythm and movement should be slowed up, making the whole thing more static.

In the end, the conception becomes almost completely detached from the idea of representing Nature, and the problem becomes one of refining the relations of a series of abstract forms.

Here I think it is worth while further considering what is involved in this process. Obviously a piece of sculpture is not just the harmonious placing together of a series of geometrical shapes. To assemble, say, a cone, a sphere, a cube, and one or two pyramids, so that the result is pleasing to the eye, should require no great mental or emotional effort; it is, in fact, rather a pleasing game. My interest in sculpture is almost entirely confined to the presentation of the female figure, and I endeavour to abstract the arrangements of shapes which I have already tried to describe from what I find in it. Having got a suitable pose, and having decided on the main disposition of the masses, considering meanwhile the distribution of weight (that is, the effect of the visual weight of one mass or hole in relation to another), the volume and the linear flow, I next develop the inter-play of the planes by which the individual masses are bounded.

Rhythm and flow in sculpture are to me much the same as they are in music. There are staccato passages where a movement is quick and jerky, and there are grand crescendos where the volume swells with big and simple resonance; and it is by the subtle relation of these that much of the finest results are achieved. The end is a drawing together and modification of the various and complex distortions and simplifications until finally one has a work in the round which is good in design from every point of view, alive and loaded with interest and subtle variation in all its parts. A work which, when first seen, should make its appeal by its grand simplicity and beauty of arrangement and should hold the interest through subtlety by which the great simplicity has been achieved.

You will notice that I have avoided the discussion of the works of individual sculptors of the sculpture of any particular period. I have done this purposely because I wished to present to you what, I think, has come to be the underlying principle upon which all sculpture of the future will be based.

Sculpture which has anything to do with architecture must primarily be considered as an embellishment. Sculpture of this kind no longer has a complete identity of its own, but is the result of the collaboration from the very start of the architect and the sculptor. The sculptor must necessarily make a subscription to the building and the form of the subscription is dictated entirely by what the architect has designed, but once the sculptor has understood this the interpretation of his understanding is entirely a matter for himself. I think that architects are not sufficiently aware of the possibilities of decoration there are in much modern and purely abstract sculpture. It seems to me that here is a new form of ornament which is much more in keeping with modern architecture than the re-hash of Greek and Renaissance ornament with which so many modern buildings are deformed. I think a good deal might be done by a closer contact between the architects and the sculptors. We are both working along the same lines of research, but while most of us modern sculptors are very aware of what you are doing, the type of ornament and sculpture with which you decorate your buildings tempts me to think you are inclined to give our activities somewhat casual examination. Often when you use sculpture and ornament of the more advanced type you accept a compromise which is superficially modern and decorative rather than something which is the outcome of real research and inspiration.

R.I.B.A. EXAMINATIONS

Following is a list of the dates on which the R.I.B.A. Examinations will be held in 1936 and 1937:—

Intermediate Examination: May 22, 23, 25, 26 and 28, 1936. (Last day for receiving applications, April 22, 1936.) November 6, 7, 9, 10 and 12, 1936. (Last day for receiving applications, October 6, 1936.) June 4, 5, 7, 8 and 10, 1937. (Last day for receiving applications, May 4, 1937.) November 12, 13, 15, 16 and 18, 1937. (Last day for receiving applications, October 12, 1937.)

Final Examination: July 8, 9, 10, 11, 13, 14 and 16, 1936. (Last day for receiving applications, June 8, 1936.) December 2, 3, 4, 5, 7, 8 and 10, 1936. (Last day for receiving applications, November 2, 1936.) July 14, 15, 16, 17, 19, 20 and 22, 1937. (Last day for receiving applications, June 14, 1937.) December 8, 9, 10, 11, 13, 14 and 16, 1937. (Last day for receiving applications, November 8, 1937.)

Special Final Examination: July 8, 9, 10, 11, 13 and 14, 1936. (Last day for receiving applications, June 8, 1936.) December 2, 3, 4, 5, 7 and 8, 1936. (Last day for receiving applications, November 2, 1936.) July 14, 15, 16, 17, 19 and 20, 1937. (Last day for receiving applications, June 14, 1937.) December 8, 9, 10, 11, 13 and 14, 1937. (Last day for receiving applications, November 8, 1937.)

Special Examination of Licentiates to Qualify as Fellows: March 30, 31, April 1, 2 and 3, 1936. (Last day for receiving applications, March 2, 1936.) October 26, 27, 28, 29 and 30, 1936. (Last day for receiving applications, September 25, 1936.) April 19, 20, 21, 22 and 23, 1937. (Last day for receiving applications, February 19, 1937.) October 25, 26, 27, 28 and 29, 1937. (Last day for receiving applications, August 25, 1937.)

Statutory Examination for District Surveyor and the Examination for Building Surveyor: April 22, 23 and 24, 1936. (Last day for receiving applications, April 1, 1936.) October 7, 8 and 9, 1936. (Last day for receiving applications, September 16, 1936.) May 5, 6, and 7, 1937. (Last day for receiving applications, April 5, 1937.) October, 6, 7 and 8, 1937. (Last day for receiving applications, September 7, 1937.)

ANNUAL DINNER

We are informed by the R.I.B.A., that circumstances make it impossible for it to arrange an alternative date for the annual dinner which was to have been held on February 3 but which was postponed on account of the death of His Majesty King George V. The Council has, therefore, decided not to hold an annual dinner this session.

FINAL AND SPECIAL FINAL EXAMINATIONS

The R.I.B.A. Examination Board in India has arranged to hold the R.I.B.A. Final and Special Final Examinations in Bombay from April 17 to 25, 1936. The last day for receiving applications, which should be sent to the Hon. Secretary of the R.I.B.A. Examination Board in India, 43 Apollo Street, Fort, Bombay, is March 23.

R.I.B.A. PAMPHLET

The 1936 edition of the R.I.B.A. Pamphlet, *Membership of the R.I.B.A.*, has now been published. Copies may be obtained from the Secretary, R.I.B.A., price 1s. each, exclusive of postage.

The pamphlet, in addition to containing information regarding the Examinations and Membership of the R.I.B.A., contains full information regarding architectural training, and maps showing the local distribution of facilities available for architectural education in the British Empire are an important feature of the pamphlet. These maps are accompanied by a schedule showing the R.I.B.A. Allied Societies and their provinces and the educational facilities available in the province of each Allied Society.

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Liverpool Architectural Society

On page 293 of last week's issue, we published a photograph of a salver presented to Professor Abercrombie on his departure from Liverpool and stated that the gift was made by past and present students of the Liverpool School of Architecture. This statement was incorrect. Actually, the salver was a gift from the Liverpool Architectural Society and was subscribed to by those friends and fellow members whose names were inscribed on the salver.

Protest to Church Landlords

A pamphlet against proposals to develop Chichester Harbour and West Wittering, which has the nearest stretch of unspoilt coast to London, is being widely circulated. It is proposed to reclaim 60 acres for a golf course.

The pamphlet expresses regret that the Ecclesiastical Commissioners, who own the land, should further the action of financiers who wish to exploit beauty for profit.

An Architect's Will

Mr. Wilfrid Bond, F.R.I.B.A., senior partner in the firm of Messrs. W. and L. H. Bond, of Grantham, left £6,819 (net personalty, £6,735).

Announcements

Mr. Calveley Cotton, A.R.I.B.A., has removed his offices to 10 George Street, Hanover Square, W.1. Telephone No.: Mayfair 5641.

The West of England Academy School of Architecture, 25, Great George Street, Park Street, Bristol, will be glad to receive trade catalogues at the above address.

DORSET HOUSE, MARYLEBONE ROAD, N.W.

PROBLEM.—*The building contains 185 flats on the first to ninth floors, 16 shops on the ground floor as well as a large area reserved for a future restaurant, a two-storey garage in the basement, a number of maids' bedrooms, and a petrol station and garage. Rents range from £150-£385.*

SITE.—*The site is an island one adjoining the Marylebone Road. The regulations allowed building to a height of 80 feet with two further storeys each set back.*

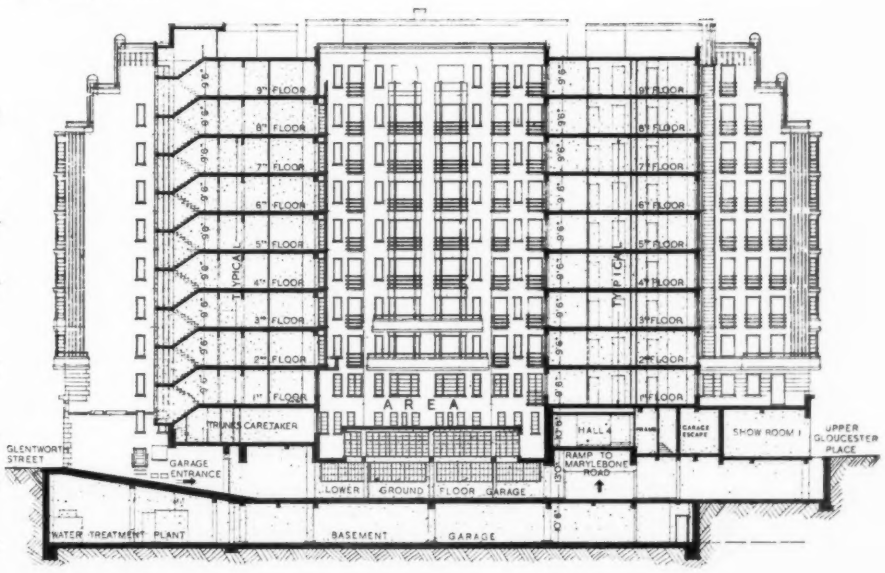
PLAN.—*The general plan form was controlled by the avoidance of totally enclosed courts. A main entrance hall on the ground floor provides access to all flats, and duplicate passenger lifts serve each section of the building.*

Roof gardens are laid out at first floor level above shops, and on the eighth and ninth floors. The principal living rooms have bay windows, and most living rooms have coal fireplaces and balconies. A second bathroom or shower is provided for all flats having more than two bedrooms.

CONSTRUCTION.—*Steel frame with brick infilling and stone dressings; R.C. hollow tile floors and roofs; roof finish, 2 in. cork and asphalt; breeze block partitions; sound-resisting partitions between flats and approaches of 3 in. cellular concrete and 2½ in. breeze with cavity between.*

ELEVATIONS.—*Multi-coloured facing brick and stone dressings; balconies with wrot-iron balustrades and brick and stone fronts, standard steel casements, with proportion of french casements opening on to balconies.*

The illustrations show: above, a general view from the junction of Marylebone Road (right) and Upper Gloucester Place; right, a detail of the balconies on the Marylebone Road front; below, section.

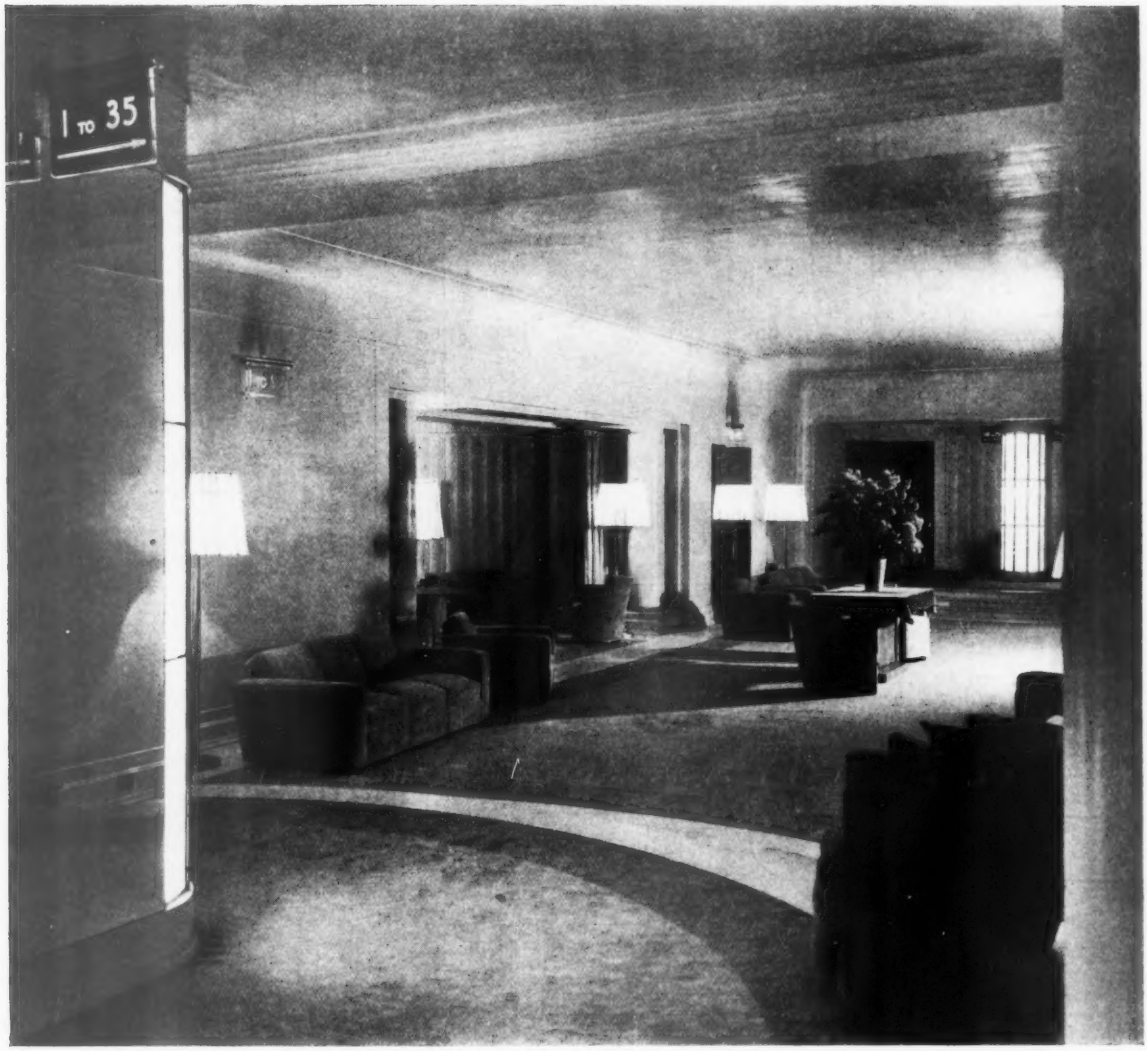


DESIGNED BY T. P. BENNETT AND SON CONSULTING ARCHITECT, JOSEPH EMBERTON

DORSET HOUSE: FLATS AND GARAGE, MARYLEBONE

The main entrance to the flats from Upper Gloucester Place.

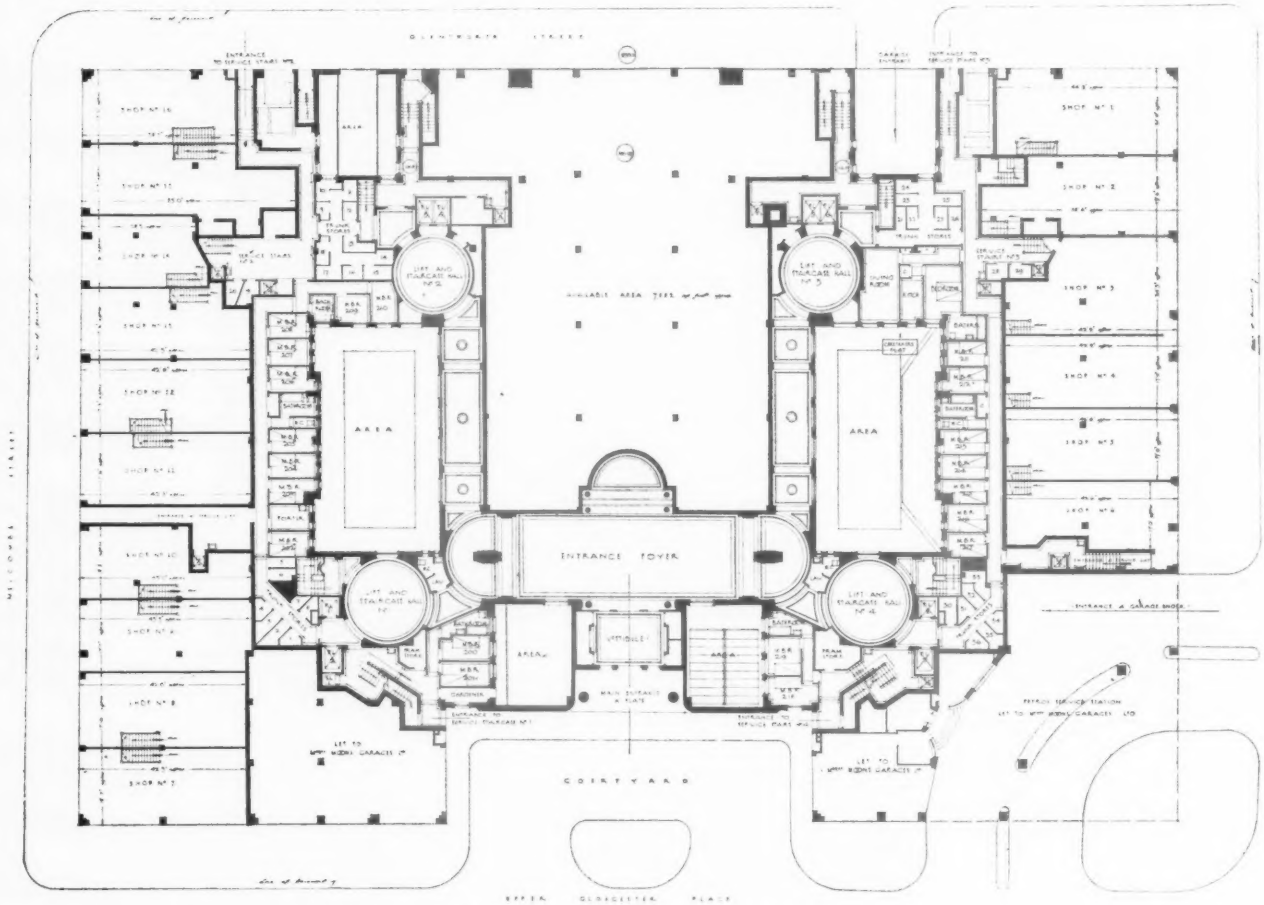
ROAD, N.W.: BY T. P. BENNETT AND SON



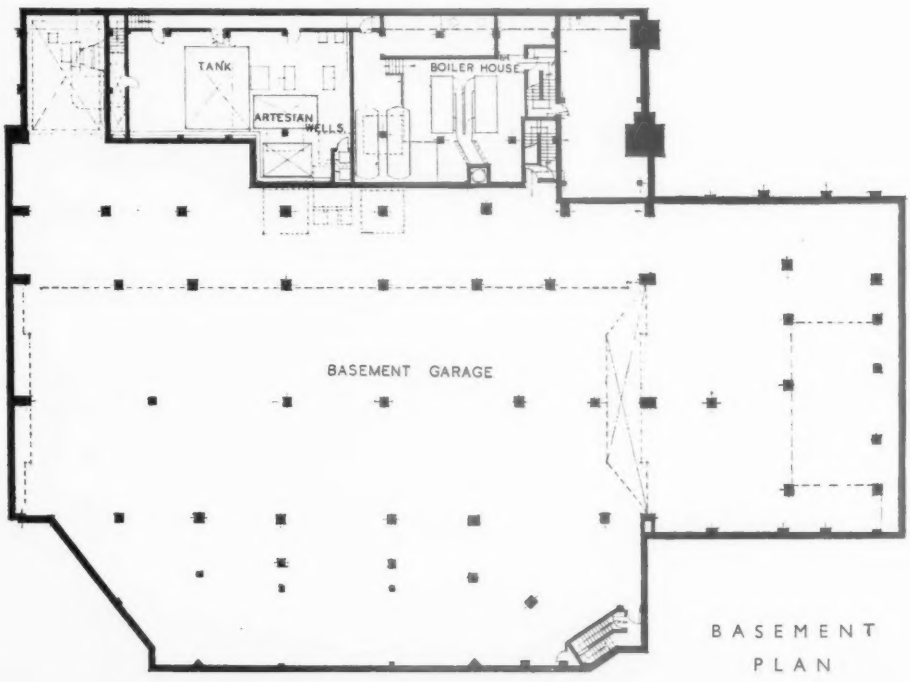
CONSULTING ARCHITECT, JOSEPH EMBERTON

The photographs show: above, a general view of the entrance foyer; right, lift and staircase hall, number four.

DORSET HOUSE: FLATS AND GARAGE, MARYLEBONE



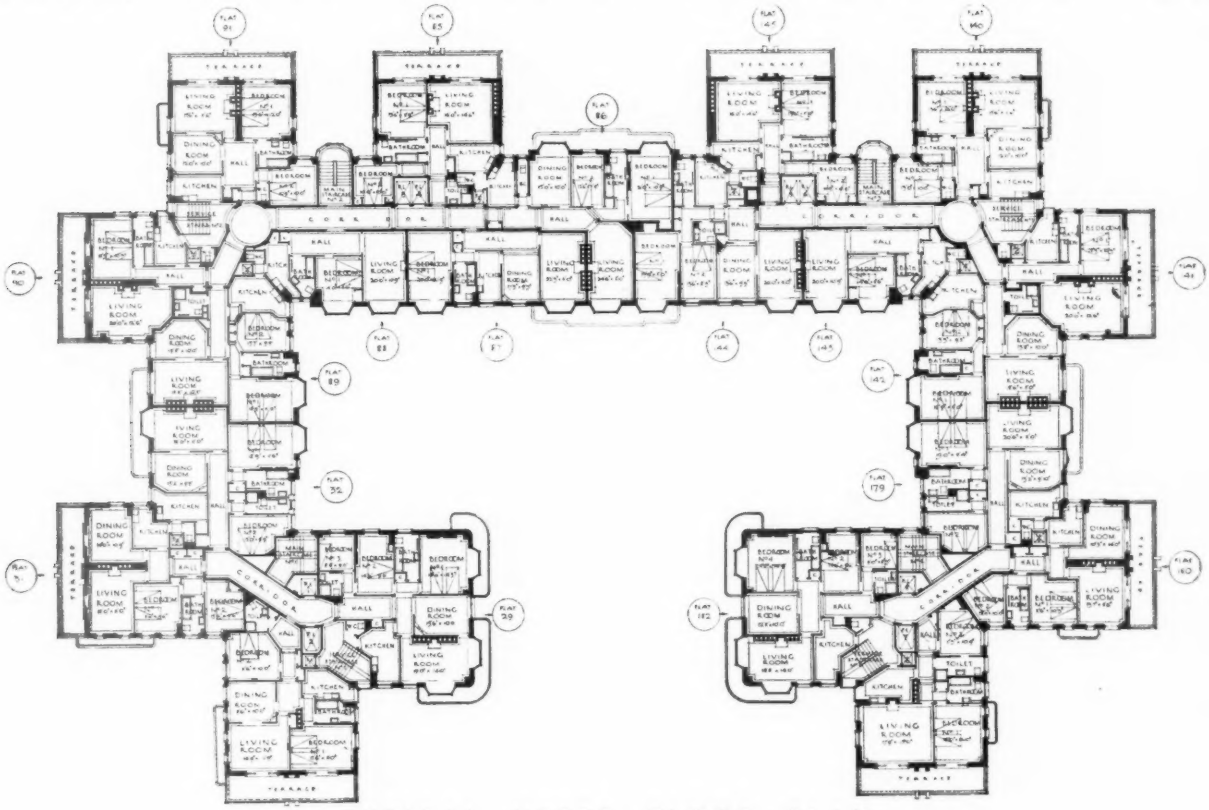
GROUND FLOOR PLAN



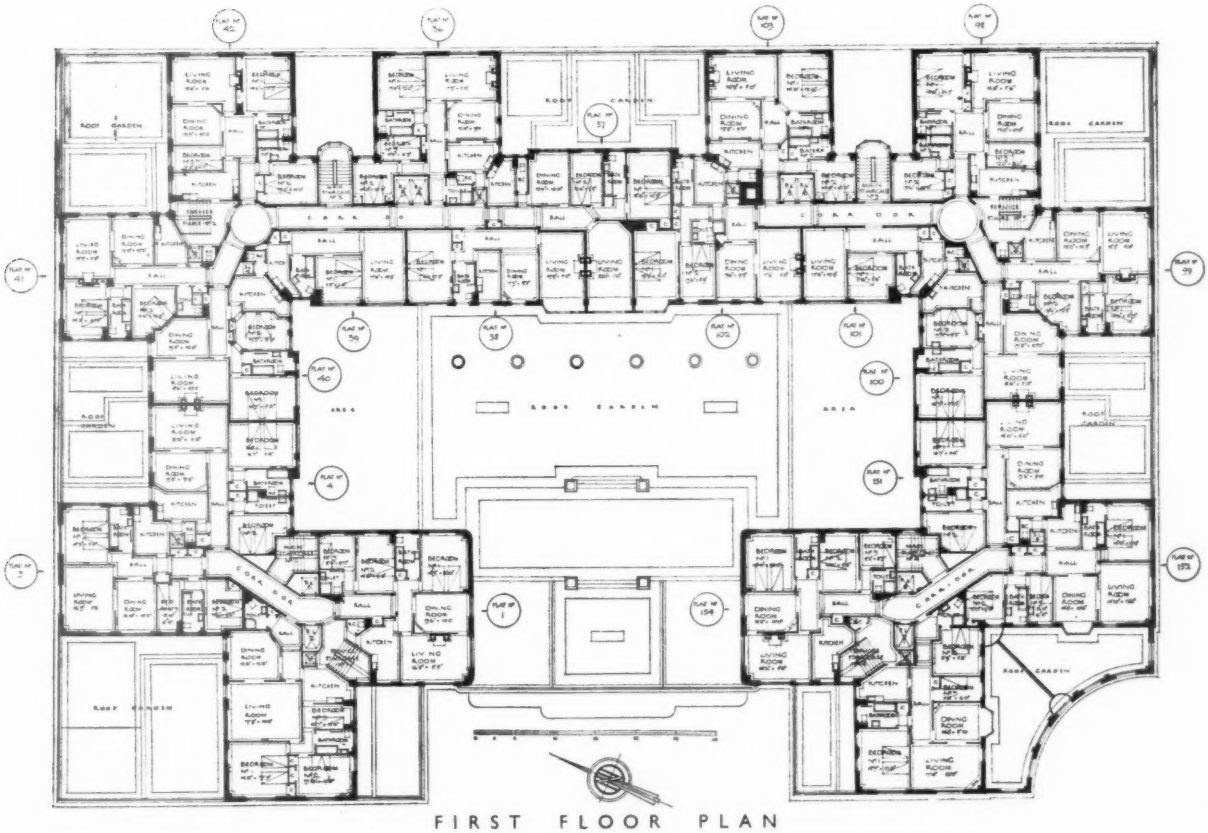
BASEMENT PLAN

CONSULTING ARCHITECT, JOSEPH EMBERTON

ROAD, N.W.: BY T. P. BENNETT AND SON

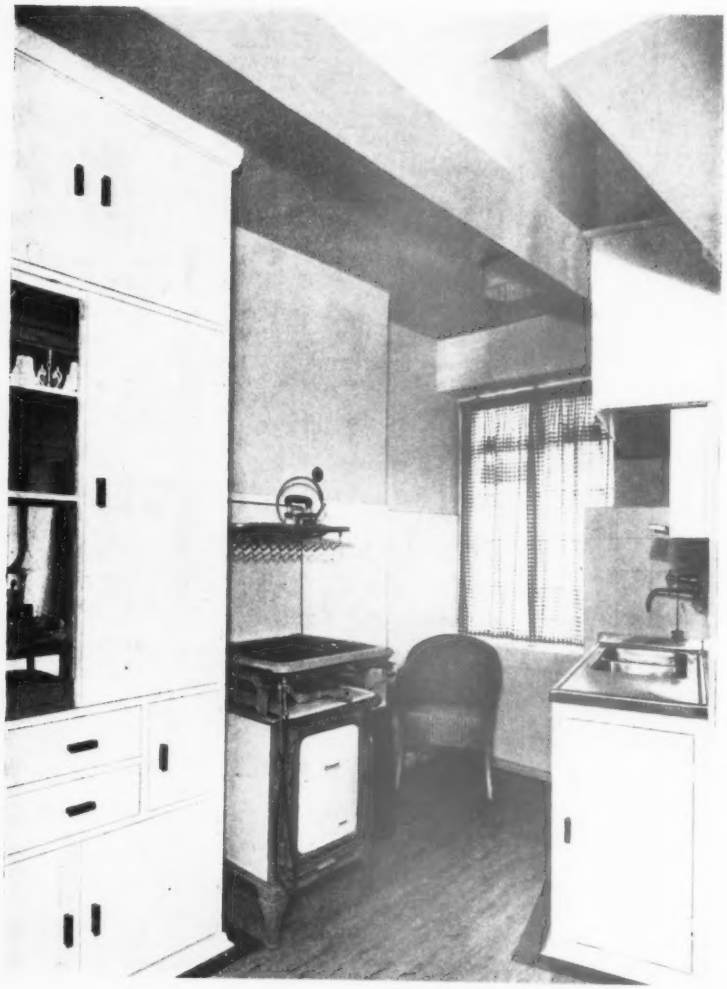


TYPICAL UPPER FLOOR PLAN



FIRST FLOOR PLAN

DORSET HOUSE, MARYLEBONE ROAD, N.W.



DESIGNED BY T. P. BENNETT AND SON CONSULTING ARCHITECT, JOSEPH EMBERTON

INTERNAL FINISHES.—*The main entrance is finished with stippled paint on plaster and the floor is carpeted with terrazzo margin. The joinery is of walnut and the main stairways are of terrazzo with stippled plaster walls.*

Flat living rooms and bedrooms are distempered and joinery painted. Bathrooms have tiled dados and cork, rubber or vitreous tile floors. Kitchens have tiled dados, lino floors, stainless steel sinks and built-in fittings, in addition to a refrigerator.

The photographs show : above, a typical bathroom ; above, left, a kitchen showing the servery on the left : left, a living room.

For list of general and sub-contractors see page 356.

LETTERS FROM READERS

BUILDING OWNER

T. A. L. BELTON

F. R. YERBURY
(Director of the Building Centre)

"CASEMENTS"

"The Adventure of Building" 1933 Edition

SIR,—The author of *The Adventure of Building* has done well to help spread the gospel of the architect-built house: I agree with the greater part of what he has written in spite of my own experience.

During a long search I failed to find a suitable cottage for sale, so I bought some land, and took my well-thought-out plan to an architect. He liked my lay-out for a six-roomed cottage, which stands today with only one window altered; and he praised the site for its level and firmness. Builders tendered; an R.I.B.A. Form of Contract was signed with finishing date January 31, 1935.

I travelled the 50 miles to the site on 70 days.

Metal casements arrived on *January 24*. I warned the architect and the builder weeks ahead that we should enter the house on February 28. On our arrival at 8.45 a.m. we were startled to find the house just as the men left it on the Saturday, with pots, pails, boards, etc., in every room, and dirt everywhere. We did what we could to prepare for the placing of the furniture, but had no broom: an hour later a man came to fetch his tools, and told me the builder went "broke" on the Saturday, and while he was speaking the furniture vans arrived: in the midst of the move-in the architect brought the Official Receiver to see what work was yet to be done to fulfil the contract. I had to pay the removal contractor £1 extra for additional work.

We then had a new builder in "possession" for three weeks, painting, staining, carpentering, plumbing, etc. We were objects of pity. In September we underwent "completion," and there were huge blisters on the walls beneath nearly every window, and the mess was dreadful when all this had to be knocked out. I settled with architect and trustee, and the *new* builder filed his petition the next week.

In October driving rain came through the cavity walls and ran down over window frames; it also came in beneath the tile cills: architect did not answer my letter. During the recent gales much more rain came through, and I wrote twice daily: architect came and claimed that the walls are standard, and asked if I suggested he had not looked after things properly. The window heads from above frames to lead gutters are to be treated with some solution, and putty and paint is to be put into joints round window frames.

I consider the *solution* will be no solution of my trouble.

Books such as *The Adventure of Building* and *The House You Want* are very helpful, and should help to stem the tide of ugliness which seems to be drowning the country; but the happy ending is not for me.

I am without any remedy, and must bear the whole cost of getting the house waterproof around the windows.

I suppose it is a general belief that if one has an architect, something near perfection will result; but one can be faced with the problem: Design—good; materials—good; workmanship—good; how can wet come in at window openings?

BUILDING OWNER
Kent

Architectural Education

SIR,—Mr. Martin-Kaye, in his recent letter, has properly thrown down the gauntlet to the students in demanding their educational programme.

The fact that the present system of education is the best that could be evolved for training typical members of the R.I.B.A. can hardly be disputed. To enlarge upon Mr. Martin-Kaye's remarks it may be said that the British public has produced an R.I.B.A. which has produced a system of education eminently suited to its social system. Any reforms such as the introduction of new materials, or slight changes in programme writing can well be accomplished and depend more, perhaps, on individual schools. It is questionable whether the "incoherent grumblings" are produced by the need for such reforms alone.

Challenged to produce their programme, the students can but follow one of two alternatives:—

1. Present a list of incidental reforms such as the above.
2. Draw up a programme for an educational system which will be suited to some future state of society.

Clearly, when faced with this only other alternative, they may lapse into "incoherent grumblings," since it is obvious that to preface such a programme with such preambles as "If only the outlook of the R.I.B.A. could be changed . . . ", or "If the public could but realize . . .", is not to lend much present worth to the programme itself.

Innuendoes about "group systems," "the Bauhaus," "modern technique," are valueless in the building market: they mean nothing to those bigwigs who call the tune for the entire profession, i.e., the boys with the vested interests. To those in the average practice, municipal or private, one might just as well discuss the Theory of Relativity.

Yet it must be realized as most important, among all the facts arising from this series of letters, that immediately modern architecture is studied from an angle which it would be difficult to contrive from an office stool, many fundamental faults become obvious and immediately foment such dissatisfaction. It would seem that had all other architects the same time and opportunity for putting the whole of building activity into its correct perspective within the present structure of society, the same unrest would multiply itself a thousand times.

What, then, is to be done? In order to give themselves an objective, the students might formulate such a programme as that of the Bauhaus, realizing that in doing so they were envisualizing certain social and economic changes which would be needed to give it full play. While consciously striving towards such an objective they might well tackle individual reforms in the present system; thus impressing both themselves and their more tardy followers with the correctness of their line. Far more important would be the need for remembering their experience as students when finally at work in an office: for if the whole profession were to generate such opinion unanimously in the next generation, there would be no gainsaying it.

Such suggestions are based on the questionable assumption that public opinion is marching in the same direction at a uniform rate: not so unsound when we agree that architecture usually reflects the spirit of the times.

T. A. L. BELTON
Nottingham

Building Centre

SIR,—The statement of Mr. A. A. Thomas that the Building Centre is closed at 6 p.m. daily and at 1 p.m. on Saturdays is correct, but arrangements are frequently made for parties

of students and others to visit the Centre after normal closing hours. If there is any real demand on the part of assistants and others, the Directors will be only too pleased to make arrangements to keep the Centre open for one evening a week to such an hour as may be necessary.

The point to which Mr. Thomas calls attention has not been overlooked and has been discussed on several occasions. The main difficulty which has arisen has been in connection with the provision of adequate technical staff in the evening.

I should be extremely obliged if any of your readers who would take advantage of facilities for visiting the Building Centre after 6 p.m. would kindly send me a post card.

F. R. YERBURY

Manufacturers' Catalogues

SIR,—The issue between "Student" and myself has now become plain: he is prepared to write for catalogues, though he grudges the time; I, as a manufacturer, am willing to send them to him when he writes, but I grudge the waste of broadcasting them indiscriminately to all students, the majority of whom pitch them straight into their wastepaper baskets. Perhaps the Editor will come to our rescue by publishing every term a list of the new students who reserve their W.P.B.s for *useless* matter only.

"Student" further says we "should advertise to people who might use" our products "at some later date." We do. At least, I presume most students read the architectural papers. "Student" certainly does, because he has something to say about the kind of advertisement "copy" used by metal window manufacturers. I am willing to admit that the material used in most advertisements is not nearly as good as it ought to be. I believe that it is not too much to say that if all manufacturers pulled their weight the advertisement pages would vie in interest with your own admirable pages, Mr. Editor. I think, however, that "Student" is perhaps rather severe in the particular examples he selects; after all, a window must be pretty good if it is selected for a building in Hong Kong, a procedure which involves a heavy bill for freight charges. Equally, elephants are not the only people interested in getting a good wide view. I happen to be a great admirer of this particular building and of the work of the architects in question, and would be proud to claim a share in building such a place. Such advertisements as these have their uses and are logically sound.

One last point: the information given in our catalogues, or, indeed, in most of our advertisements, is not "vague." It is the knowledge of our products in the mind of the average architect who lost our catalogue twelve months ago which I claim to be "vague," and, believe me, I am right. You should see some of the specifications we receive.

"CASEMENTS"

B.I.F., BIRMINGHAM

Below are printed some further notes on the principal exhibits at the Heavy Industries" Section of the British Industries Fair at Castle Bromwich, Birmingham. The Fair will remain open until February 28.

One of the most important features of the Stands (B.421 and 320) of Dunn's Concessions (England), Ltd., is the Dunbrik. This brick is claimed to possess a degree of porosity as low as 7 per cent., and to make rendering unnecessary. It has been used on several types of buildings, including flats, cinemas, factories, houses, etc. Dunbrik is available in nine standard colours, and it is also stated that it can be produced in any shade to meet the requirements of architects.

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A complete range of asbestos cement building products is shown by Turner's Asbestos Co. (branch of Turner and Newall, Ltd.) on Stand Ca.401. The many exhibits shown include: Turnall Trafford tiles, Turnall asbestos cement building slabs, Poilite asbestos cement flat building sheets, Decolite jointless flooring, Turnall asbestos wallboard, etc.

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Patent roof glazing is the principal feature of the Stand (B.422) of Hills Patent Glazing Co., Ltd. This glazing consists of various size steel tee sections, according to length of bars required, entirely lead clothed with a jointless sheath. Other exhibits include: lantern lights, metal windows, ventilators, screens and partitions. The lantern lights are claimed to be adaptable to all conditions for the specific purpose of lighting and ventilating flat roofs. These comprise a vertical steel frame about 1 ft. 6 ins. high, in which can be placed ventilators to suit the architect's requirements. The roof portion is formed by the use of Hills' patent glazing. This is the first time the firm have exhibited metal windows, the manufacture of this product being a recent development of Hills. A new type of exhaust ventilator is also shown. This has been designed to provide, in patent roof glazing, natural ventilation that has efficient extraction under all weather conditions. This ventilator is claimed to be the only one of its kind.

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On Stands Ca.709 and 608 Serck Radiators, Ltd., are exhibiting their Serckulator gas-fired air heater, which was conceived, designed and constructed in collaboration with the Industrial Heating Section of the City of Birmingham Gas Department. This heater embodies the results of the firm's latest researches in heat transfer and air distribution, while the Gas Department gave freely of their knowledge and experience in economical gas combustion. The principle of working is to maintain a uniform temperature in the oven by recirculating hot air with a propeller fan over gas-heated surfaces and distributing the air in definite directions. The fan is direct motor-driven with bearings oil-cooled and lubricated by pump circulation from a tank below. The complete unit, suitably insulated to conserve heat, is fitted with thermostatic control gear and also a gas control valve arranged to operate in the event of a motor stoppage. The heaters, if desired, can be fitted with temperature indicators or recorders.

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Hawkes and Snow, Ltd., feature, on Stand B.343, their Eclair doors. These doors, we are informed, are now constructed up to 110 ft. in width, and by means of supporting the doors by reinforced concrete pylons at either end, and supplying these with suitable foundations, it is possible to transfer from the door all wind pressure and other stresses on to the pylons. By this means, it is stated, the door can be fixed as one complete unit.

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Air blowing plant, gas heaters and burners are featured by James Keith and Blackman Co., Ltd., on Stands Ca.709 and 608.

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A comprehensive range of high-grade kitchen cabinets and electric refrigerators is exhibited by Kitchendom, Ltd., on Stand A.706.

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W. R. Pickup, Ltd., exhibit (B.403 and 302) their enamelled sanitary fireclay ware and fittings which are claimed to be suitable for public institutions, schools, hospitals, cinemas, factories, hotels and private houses.

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The products of Smith and Davis, Ltd., are fully exhibited on their Stand (A.624). The exhibits include: horticultural, domestic and plumbers' brassware, Beacon curtain rail, expanding curtain rods, clipper stair carpet holders, brass hinges, barrel bolts, chain, sink wastes, picture and mirror fittings.

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Electric switches, interlocking switchplugs, switchplates and lampholders (metal and shockproof), ceiling roses, sockets and plugs, adaptors, cooker control units, teak and ironclad fuse and distribution boards, ironclad and shockproof switch fuses are exhibited by J. H. Tucker & Co., Ltd., on Stand Cb.306.

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Hot rolled steel strip and bars for general engineering, rapid machining steel, ferro-concrete bars, barrel and baling hoops, and strip in various finishes are shown by the United Strip and Bar Mills on Stand D.713-614.

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Henry Wiggin and Co., Ltd., feature, on Stands D/413 and 314, a model kitchen, which incorporates a monel metal sink, table tops, etc. Several other products of the firm are also exhibited.

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A complete range of bathroom equipment is exhibited by Downham & Co., on Stands A.419 and 314.

SOCIETIES AND INSTITUTIONS

HOUSING CENTRE

"Manchester Leads the Way" was the title of a paper read by Sir Ernest Simon at a meeting of the Housing Centre in London last week. After describing the many difficulties which the Manchester Corporation had experienced in obtaining the necessary power to develop Wythenshawe as a satellite town, Sir Ernest Simon went on to say that Wythenshawe was the first serious effort by a great city to produce a satellite garden town which offered amenities similar to those of the independent garden city. Although effective work at Wythenshawe only began in 1931, it had already a larger population than either Welwyn or Letchworth, and that correspondingly more money had already been spent on its development. The reason for the difference was that Manchester City Council was in a position to provide the two things which Welwyn and Letchworth lacked—cheap capital for development in whatever quantities it was required and houses in large numbers to make the capital remunerative. There could be little doubt of success in that kind of development so long as enough capital was available at low rates of interest and development occurred sufficiently rapidly to make the capital invested in such things as main drains, roads, water, gas and electricity productive without undue delay. Any great city could ensure these two conditions. Nobody except a great city could ensure that. The Government could have helped the garden city movement by making cheap capital available, but it would have been difficult for the Government, which does not itself build houses or factories, to ensure rapid development. A great city, which itself builds thousands of houses every year and was also the master of ample capital, could alone provide both the necessary conditions for success. That was the importance of the Wythenshawe experiment. If the garden city movement was to extend it must be sponsored by our great cities.

But the history of Wythenshawe, he said, showed that there were two further conditions which were vital to success. The first was that the city must own the land, or at least the major part of the land. The powers of the city as local authority were limited to such powers as were expressly given by statute and were totally inadequate to ensure satisfactory development. But the powers as landlord were limited only where actions were expressly prohibited by statute; the landlord could lease land subject to any conditions he liked to impose. It was the landlord power which was enabling Manchester to preserve the amenities of Wythenshawe in all kinds of ways which would not otherwise have been possible.

The second condition was that the city should also itself be the local authority for the satellite garden city. A little consideration showed this to be almost essential. Some services must be provided in advance of building, specially schools. The city intending to build makes its decisions and has confidence in its own intentions to carry out those decisions. Manchester committed itself to an expenditure of many hundreds of thousands of pounds before a single house was built.

If Wythenshawe had remained under the Cheshire County Council the County Council must inevitably have said: "Yes, you intend to build. But suppose you do not carry out your intention. If we commit ourselves to the provision of roads, sewers and schools to serve a population which will inhabit five or ten thousand houses, and you then do not proceed, what is our position going to be? What guarantee can you give us that you will, in fact, build those houses?" Of course, the city could give no such guarantee, and a deadlock inevitably arose. It was clear that for large scale development of satellite garden towns the whole of the land concerned must be included in the area of the city which was taking the responsibility for the building.

Parliament today was taking the view that no extension of cities should be allowed unless and until they could prove that their existing area was completely built up. So long as Parliament maintained that view the possibility of the building of satellite garden towns by the county boroughs was excluded. This seemed to be narrow and shortsighted.

Our great cities were still expanding. Even though the population might not increase much, the rebuilding of the slum areas at lower densities would force a large number of families from the slums to the outskirts, where they ought to be housed in garden towns. If Parliament maintained its present attitude they would be driven out into areas controlled by rural authorities which would be unplanned or ineffectively planned. The conditions might be fairly good, but they would be far from the excellence of Wythenshawe.

If, on the other hand, great cities were not only allowed but encouraged to extend their borders and to purchase land, more Wythenshawes would grow up and the twentieth century would be marked by the development of a series of satellite garden towns which would be one of its chief glories.

Sir Ernest Simon concluded his lecture by saying: "We are spending one hundred million pounds a year on house building. Just think what a big capitalist firm would have done were they spending that sum. The I.C.I., for instance, would have collected the very best experts on the subject and set up a research committee to go into all its aspects. The Ministry of Health has never had anything even distantly resembling this. Another important problem, which the Housing Centre is now taking up, is the whole relationship between cottages and flats. The Ministry of Health has just not considered all this as its job.

"I do not think housing and planning are going to be done in this country as well as they can be done unless we have someone at the centre thinking about the whole thing. Local authorities cannot do it. We want someone who knows what is being done all over the country and what is being done abroad."

Mr. John Dower, A.R.I.B.A., who presided, before opening the meeting for discussion, mentioned two important problems arising out of the lecture. Mr. Dower said that Wythenshawe, the best thing of its kind that had been done at the moment, had set out to be a mixed community housing all classes of the population, but it had so far almost completely failed to attract any but the working-class people. "Are we," he asked, "to visualize the new satellite and dormitory estates, the new residential units as put up entirely for the working class? Have we got to accept this picture or is there some way out?" The second problem that Mr. Dower emphasized was the difficulty of maintaining a proper relationship between the growth of residential and industrial facilities.

Mr. Dower said that it was important to keep a distinction between positive planning and the present planning schemes which were of a purely restrictive nature. He thought it necessary that some practical steps should be taken to control the location of industry as that was the central problem of planning; the planning of the residential units was only a secondary problem. He believed that, as the first step, positive encouragement should be given to industries to come to certain places.

GEFFRYE MUSEUM

Mr. E. Hawking is shortly to retire from the position of Curator of the Geffrye Museum, Kingsland Road, E.2. He has been in charge of the Museum since its establishment in 1912. Following is a list of the lectures arranged by the authorities to take place during March on Thursday evenings at 7 p.m.

March 5: "Looking Backward: Furniture of the Past," by Mr. Ernest Hawking.

March 12: "Looking Forward: Furniture and the Future," by Mr. Percy A. Wells, F.R.S.A.

March 19: "The Origins of Decoration," by Mr. Henry G. Dowling, PP.I.B.D.

March 26: "Queen Anne and Georgian Houses and Furniture," by Mr. Ingleson C. Goodison.

SOUTH LONDON EXHIBITION

The South London Exhibition will be held at the Crystal Palace from Wednesday, March 4, until Saturday, March 14 next, when everything for the home will be exhibited. Houses of different types are being built inside the Crystal Palace. The Exhibition will be open daily from 2 p.m. until 10 p.m.

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ANNOUNCEMENT

Messrs. Anthony M. Chitty, A.R.I.B.A., and Val Harding, A.R.I.B.A., have resigned their partnerships in the firm of Tecton, Architects. Mr. Harding has entered into partnership with Mr. Godfrey Samuel, A.R.I.B.A., and they will practise under the name of Samuel and Harding, at 6 Cavendish Square, London, W.1. Telephone No.: Langham 2926. Mr. Chitty will carry on his practice in association with them at the same address. The temporary address of the firm until March 7 is No. 23 Haymarket, S.W.1. Telephone No.: Whitehall 2248.

SHOP IN SHERINGHAM, NORFOLK

PURPOSE.—*Linen shop in the centre of the town. Both shop and showroom above were required to be very well lit.*

CONSTRUCTION.—*Brick cavity walls at front and back of the shop. First floor and roof of 8 in. × 2 in. joists notched into R.S.J.'s Flat roof finish of rough boarding and layers of bitumen and felting, with a fine grit finish. Ground floor of 3 in. concrete, 2 in. breeze, and columbian pine boarding.*

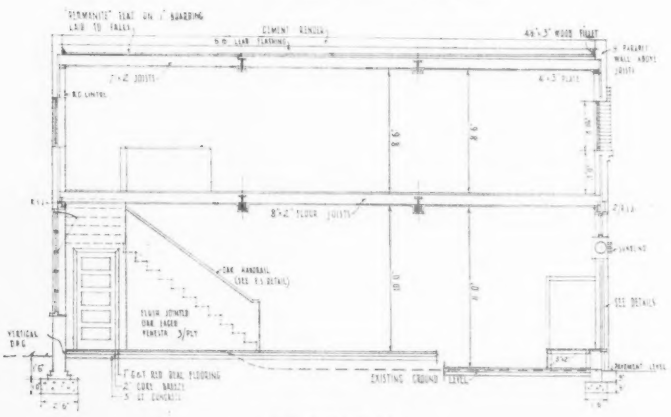
SHOP-FRONT.—*2 in. Dutch bricks, with wide bed joints; window surround in travertine; teak door and window framing, with stainless steel fittings and sunblind lath.*

INTERNAL FINISH.—*Walls of plaster, stippled and coloured cream. Joinery painted emerald green. Staircase and display backs in oak veneered plywood.*

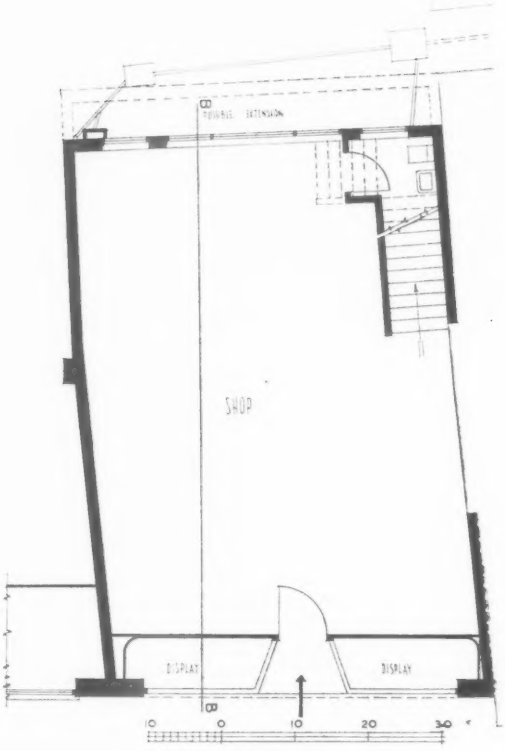
COST.—*Contract price, £1,116. Price per cubic foot, 10½d.*

Above, the main front.

For list of contractors and sub-contractors see page 356.



SECTION



PLAN

DESIGNED BY W. FRANCIS TUTHILL

TOWN HALLS

FOREWORD

BY THE EDITOR

ON the pages following there begins the first section of the JOURNAL'S *library of planning.* ***TOWN HALLS*** *have for many years and many reasons been of great interest to all architects, and their plans and external appearance have probably been reproduced more often than those of any other specialized type of building. It was because of this, as well as on the other grounds put forward in the leading article of this issue, that the planning of* ***TOWN HALLS*** *was first selected for examination from a particular point of view.*

The most cursory study of the series which starts this week will reveal some features that may be unexpected. Detail planning, such as fenestration, will not be comparable with elevational expression, for external expression is shown only by block axonometric drawings; in the accompanying notes few hard and fast conclusions as to best possible plan solutions are anywhere stated; and, finally, a large number of opinions are quoted of persons whose working lives are spent within ***TOWN HALLS****. All these features result from deliberate intention.*

The planning section is begun in the belief that planning is the architect's principal responsibility, that too little time has been devoted in the past to planning research, and that little facility exists for the analysis and comparison of many solutions to a single specialized building problem. In regard to ***TOWN HALLS****, a wider comparison has been possible because of the customary competitive selection of their architects, but this system has itself introduced an artificiality into the study of the planning of this building type. The research undertaken has been too often undertaken with the object of winning an open competition and not with the object of planning the most useful and convenient* ***TOWN HALL****.*

For these reasons the following sections will attempt to stress a different point of view. The procedure of departments will be described, the opinions of officials quoted, and useful detail dimensions and data given, but no rigid theories as to the best general plan lay-out will be advanced, for none such can exist suitable for all sites.

In this section planning will be defined as meaning the organization of all that a building contains to secure its greatest practical usefulness and convenience, and symmetrical composition for decorative effect will not be considered to have more than its due of usefulness.

INTRODUCTION

THE series of articles which this chapter introduces were written with the object of giving designers of municipal buildings some information about the real functions and administration of a civic centre.

The JOURNAL conceived the idea of publishing the articles because it felt that there was no book or series of articles which dealt adequately with the subject, and that, compared with other branches of planning and building, the design of municipal buildings was at a standstill; largely because the type of plan which had been evolved by many years' continuous repetition had become stereotyped and needed the application of both research and a new incentive. It was realized that lack of research was probably one of the main causes of the present standstill in municipal planning, and that research was expensive and laborious enough to be outside the reach of the architect who had a small office and little experience of actual contact with municipal building. It was realized, too, that such men form the backbone of the competition system and that in the present day the competition system largely governs the design of municipal buildings.

The JOURNAL therefore decided to prepare a series of articles on the planning of civic centres.

The manner in which the material for the series was gathered was largely a result of the author hearing a most successful competition architect, of many years' experience, say that he thought municipal buildings were the easiest of all "competition" buildings to plan, and that civic centre planning could be picked up by anyone with a good education, because the requirements had been worked out through so many years and all the plans were widely published in the professional papers. Knowing that these sentiments, although incorrect, were held by many

architects, it was felt that research work for these articles was not to be done by sitting in the excellent library of the R.I.B.A. or by asking successful competition men why they always won. Instead, it was decided to interview officials actually working in civic centres—heads of departments, weights and measures inspectors, aldermen, hall porters, medical officers, borough treasurers, etc.—and to try to obtain authentic information on the actual functions and administration of a civic centre. The proposal to obtain material in this way was frowned upon by my fellow architects, because they held that officials did not know themselves what they wanted, and, anyway, they could never see things through architectural eyes.

This advice was ignored, and the material for the articles was largely gathered " straight from the horse's mouth," because in nearly every case officials knew very definitely what was wanted and were able to see so well through professional eyes that some were rude enough to say that architects needed very powerful glasses. The advantage of this practical data is that designers can visualize the actual working of the buildings which they are designing, and can see what can or cannot be done with the relationship of the various units or departments, and so need not be tied to any stereotyped planning.

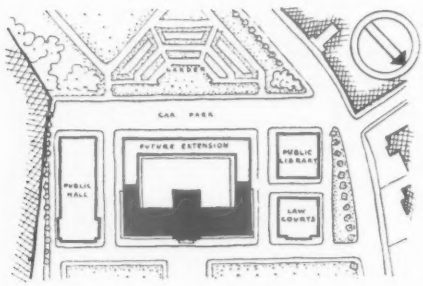
" Advanced " critics, by which I do not mean either progressive or clever critics, but rather those who have perused the " galley proofs " in advance of publication, have murmured, saying that there are some good ideas, but there are very few definite conclusions as to the planning of various departments in municipal buildings, and that, although there are accounts of what happens in the various departments, there are few suggestions and lay-outs which dogmatically state that the departments shall be laid out in a certain manner. Everything possible has been done to overcome this criticism. The articles are profusely illustrated with all the recent municipal buildings and civic centre plans drawn out as they were actually built and not as competition drawings. The illustrations are annotated with statistical notes, and some pages have been devoted to practicable lay-outs, but it is impossible to say definitely that any combination of rooms is always right, because every departmental chief has his own ideas on arrangement, and anyone who doubts that no two people think alike should ask some assorted medical officers what is the best lay-out for a clinic.

Other critics have said that the book is too simple, because experts on municipal buildings and civic centres like Mr. Vincent Harris know all about details, such as reporters needing special telephones near committee rooms or that guinea-pigs should be kept on roofs. The reply to this is that the articles were not written primarily for the education of a specialist like Mr. Vincent Harris (who knows far too much about it already for the peace of mind of most competitors). The articles were written to codify information not easily obtainable in the hope of stimulating progress in planning.

Lastly, it was asked why at the end of a tirade on the right approach to the design of assembly halls I should set down the portion of the bye-laws which deals with seating and exits. This and similar data were included to give competitors a quick and easy reference from which assembly hall lay-outs could be deduced without laborious wading through bye-laws. On this account, I think, all the dimensions which we give relating to council chambers, law courts, etc., can be justified.

The articles deal with the mayor's ceremonial rooms, municipal offices, assembly halls and law courts, with chapters on heating, acoustics and competition methods. A great effort was made to obtain cube prices of actual buildings and to include a chapter on costing, but this proved impossible to do in a thoroughly satisfactory manner and so was omitted.

It is hoped that the information given will prove of interest, even if of provocative influence, and will help to guide Town Hall planning away from the imitative towards the more thoughtfully and progressively original.



Swinton and Pendlebury

3 TOWN HALLS

The Architects' Journal Library of Planning

The Site and the Future

THE GENERAL LAY-OUT OF A CIVIC CENTRE

THE ideal position for a site on which to build a civic centre has three requirements :

It has to be centrally placed in the town, so that it is easily reached by all who wish to do business there.

It has to be in an area quiet enough for the town's business to be done efficiently.

It has to be capable of containing suitable buildings.

In actual practice the selection of a site depends upon many other considerations : money and local politics really appear to be the decisive factors in the choice, very often to the extent that the site is acquired before an architect, assessor or the R.I.B.A. is consulted.

This omission to engage competent advice has, in the past, been the cause of great loss of administrative efficiency and of the erection of buildings of unnecessarily costly construction. An architect, or in the case of pending competitions, the future assessor, should be consulted at the very outset of any scheme in order that it may be decided immediately whether the suggested site would be big enough to hold the accommodation, whether an efficient lay-out would be obtainable, and what would be the approximate cost of the scheme. Even if the architectural aspect is overshadowed by other considerations, these points do greatly affect local politics, local finance, and the ease of running of the civic administration.

The Site and the Future

The site itself must be large enough to contain the present accommodation and easily half as much again.

The expansion of local government control and the tendency for big towns and cities to enlarge the boundaries of their boroughs and the scope of their administration have been enormous during the last twenty years, and there is no reason why these increases should not continue in the future ; there is, indeed, every reason to suppose that they will.

It is a waste of time and money to buy sites or to design buildings which are only capable of comfortably housing the present needs of any corporation. It is believed to be true that every corporation which has not built new offices in the last fifteen years is faced with the problem of dealing with staffs and departments too big to be housed in the existing accommodation. One official observed that if they had a clean slate to replan the present municipal departments of Birkenhead on an ideal site, and work was begun immediately, the buildings might well be too small before they were finished. The problem of expansion is not being tackled except by the crudest methods, and the majority of recently built municipal schemes are extraordinarily short-sighted in this respect. It is not enough to dot on a block plan "Room for Future Extension" ; such lateral expansion means valuable land standing idle for a number of years, and, when the extension is eventually built, long unwieldy corridors with consequent slow communication and administration.

The cramped and overflowing departments of old municipal offices clearly show a lack of forethought which has resulted in almost insuperable difficulties today. These old buildings were not "town planned for the future." As new buildings they were adequate to house the accommodation of the times, in some fashion, but, as local authorities began to take more reponsibility, they soon became overcrowded; and, as it was often impossible to enlarge the existing site or to buy up adjoining buildings except at great cost, necessary expansion has taken place piecemeal and the various departments are housed in adjoining buildings or throughout the various towns.

History seems to be repeating itself with great consistency, and the sins of the fathers will again visit the children of about the third generation—if not before.

In very few cases is it possible to replan the centre of an existing town owing to the scarcity of land, and perhaps the old towns which are restricted from development on one side (by a river or the sea) are most fortunate in this respect, in that the centre of development has often changed, and local authorities, helped by the recent Town Planning Acts, can sometimes now obtain almost ideal sites for their buildings in the new centre. Such a move takes courage and foresight, but in these cases there does seem to be a great opportunity to establish adequate and efficient civic centres on comparatively big and cheap sites. The extent of the new towns is planned, and the new centres can be judged so assuredly that it would seem worth looking fifteen years ahead instead of erecting buildings adequate only for the next five.

Expansion

But even when a suitable site is obtained there still remains the problem of expansion. I suggest that for this there are only two solutions :

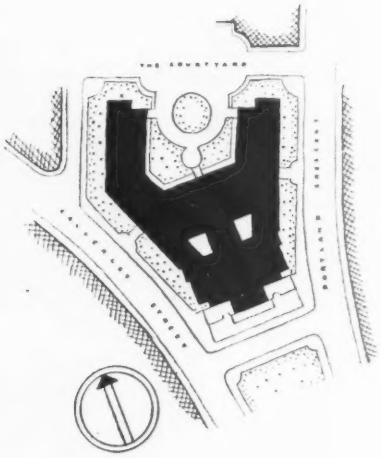
(1) To obtain a large site and build on part of it, leaving the remaining part for future development ;

(2) To build blocks of offices in such a way that further storeys could be added to meet increases in staff.

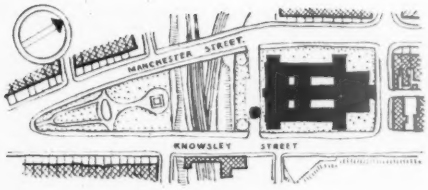
Solution (1) is bad because it involves buying a large piece of ground, probably at great expense, which would have to stand idle for some years before it is used, and when the extension was built there would be further lengths of corridor and offices added, making the building straggle and decreasing the speed of circulation.

The skyscraper was evolved to overcome the

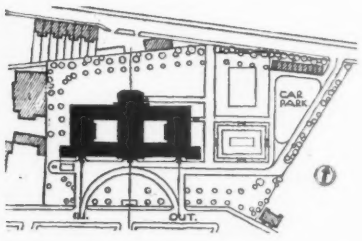
problem of putting large accommodation on a restricted site; and so solution (2) seems much more practicable in that smaller sites can be bought with a knowledge that they will be adequate for a reasonably long time whatever extra duties may be delegated to local authorities, and because more vertical, and consequently quicker, communication would be used than is at present fashionable in municipal schemes.



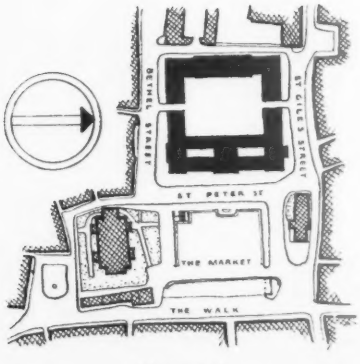
Leeds



Bury



Swindon



Norwich

For this it would not be necessary to build skyscrapers; if the buildings were allowed the height permissible under the London Building Acts it would be possible to increase the capacity of the present two storeyed municipal office fourfold—an expansion which, if carried out laterally, would require a very large area of ground.

None of the officials and heads of departments with whom this suggestion was discussed raised any objection to the idea of high rather than long and low civic buildings. After a certain understandable timidity at the thought of so great a change, they expressed the opinion that administration would be much easier and the circulation quicker.

Architecturally the introduction of tall buildings into civic work would be particularly stimulating, since it would mean that the majority of accepted traditional compositions, "typical plans" and parts would have to be jettisoned. With this elastic treatment, it would be exceptionally difficult to introduce symmetry with any degree of success, since the municipal offices would be added to from time to time. It would be impossible, for instance, to balance the municipal offices with the assembly hall or use any such time-honoured devices. And, as the parts of the scheme would not be constant, it would be impossible to introduce any kind of dominating feature, such as a clock tower, unless it were used as an isolated unit.

But it must be emphasized that the difficulties encountered in this building upwards for expansion are nearly all æsthetic. The advantages appear to be very great both in large and small schemes. A trial *esquisse* will show that such a scheme provides a good, compact lay-out capable of being easily administered, and places each department within easy reach of others.

But, whatever method of expansion be adopted, it should be remembered that the various parts of the building lay-out require to be "town planned," so that portions can be added without marring the architectural composition of the building, and without causing disturbance to the working of the offices. These are the chief difficulties to be overcome in the near future.

Expansion is a very real problem which requires to be properly solved; and at the moment it is hardly being considered at all. There are many difficulties in the way of Utopian schemes for perfect planning, but there are far more in the way when you try to persuade people to do things for their grandchildren to enjoy. Only concrete evidence that a town is losing a lot of money because its municipal buildings are both too small and badly planned, and the continuing production by architects of civic buildings which are really efficient, will cause local authorities to become bolder and more far-sighted in their architectural outlook.

TOWN HALLS

THE GROUPING OF THE BUILDINGS

WHEN planning the general lay-out of a civic centre it is essential to provide as much open space round the buildings as possible; for, excluding æsthetic values, this space lessens the problems of traffic noises, crowds and car parking.

Concerning these questions a sound-engineer has said that architects completed the scheme first and then considered what methods should be used to combat noise. While this statement is not entirely true, it is certain that the problem of noise must be tackled at the very outset of the scheme. Municipal buildings are usually planned adjoining a main traffic stream, and it is almost impossible to prevent offices and committee rooms from being subject to air-borne noises. Narrow streets are excellent intensifiers of noise and the streets bounding the sides of the site should be made as wide as possible.

A large forecourt to the main and assembly hall entrances facilitates the handling of crowds and traffic.

The number of cars required to be parked on site is usually stated in competition conditions, or in the programme laid down by the local authority, but it should be remembered in considering this accommodation that in five years time perhaps 25 per cent. more parking space will be required.

In my opinion, cars should be parked as inconspicuously as possible. At Swansea this problem has been solved by having a car park underneath the assembly hall. In this way the basement of a municipal office could be used as a garage, but it is doubtful whether many local authorities would consider the expense worth the convenience.

The Main Approach

It is impossible to discuss here the question of main approaches, since every site and its surroundings are different.

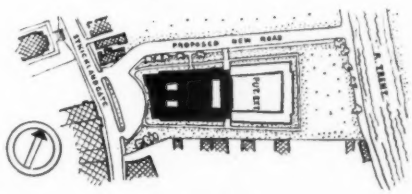
But in drawing up competition conditions assessors and local authorities should, if possible, definitely state which side of the site is to be used as the main approach to the buildings. This would save competitors a great deal of time and trouble, and anything that can be done to help competitors by a careful drawing up of the conditions should be done. It is not suggested that conditions should be laid down which would prohibit a good plan but, where the council and assessor are certain of what they want, their requirements should be definitely stated.

Individual choice must also decide which unit shall dominate the plan. Modern competition plans in both large and small schemes usually put the council chamber as the main feature of the municipal offices, with the main entrance door serving the offices, council suite and the mayor's rooms. The assembly hall is placed on one side of the offices, and is usually balanced by a wing of the municipal offices or by an art gallery; while the law courts are placed at the back of the site and behind the municipal offices.

In my opinion it is a mistake to use the municipal offices' entrance as the entrance also to the reception suite. Mr. Percy Thomas has said that he designed Swansea in this way because he believed that it encouraged the civic pride of ratepayers to enter the grand doorway of the civic centre to pay their rates. While this may be so, such an arrangement is certain to cause the ceremonial and business circulations to mix, and to make control very difficult.

The Ceremonial Rooms

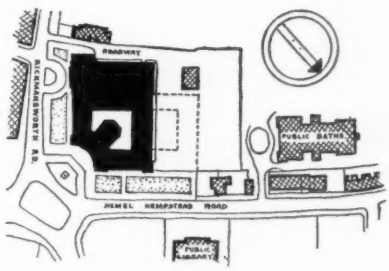
It is suggested that the mayor's reception rooms should be regarded as the head of the plan, even if these are only two or three rooms



Kendal

attached to the assembly hall, and that the municipal buildings should be placed at the side or back of the site where they can be used as office buildings, and where there would be no necessity to design them to a definite shape which would balance something else, quite regardless of the fact that such a designing renders the office buildings inefficient.

The first points to be considered in planning a lay-out is to see that each building can be well run; that the assembly hall has got ample exits and entrances without resorting to cramping other buildings; that the municipal offices are well lighted and an economical shape; and



Watford

the council chamber and committee rooms do not face on to a main traffic stream. This practical lay-out must be worked out before any attention is paid to æsthetic conditions. It is useless to approach the detailed planning of a problem with the idea fixed in your head that such and such a unit will go in a certain place

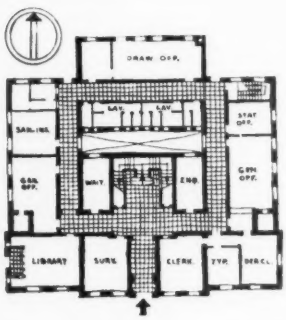
and the municipal offices must balance the assembly hall—so that a nice slick competition plan can be put on paper.

Architectural design is turning slowly towards a definitely asymmetrical style (as opposed to a symmetrical style such as Neo-Classic). This change has come about logically to cope with present-day conditions. To start planning again on a reasoned basis, the practical planning must be thoroughly and efficiently worked out first and foremost; and if municipal offices of eight storeys are found to work well, then they must be designed as part of the scheme. Perhaps a lot of accepted theories of the modern and classic schools may be destroyed by this method of designing, but it should produce schemes which work, and there is no lack of people ready to explain to the world exactly why a new "style" is definitely the right one.

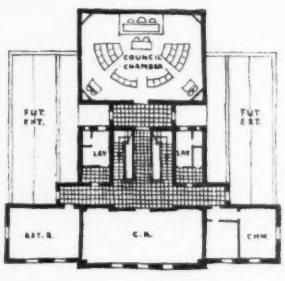
By taking the mayor's room out of the municipal offices, the council chamber and committee rooms can be placed at the side of the municipal offices away from the principal front, and there would be no necessity to approach the council chamber by a grand stair or even place it on a main circulation; moreover, the planning of the municipal offices in an isolated position permits extensions to be made by adding more storeys to them, or by building out wings without the original composition of the whole scheme falling to pieces. It will be seen that unless Britain starts to imitate America by placing the law courts or assembly hall either beneath or on top of the office block, then these two units must be always planned as separate buildings to the municipal offices.

The courts should have a quiet position on the site, well protected from traffic noises. The entrances to the courts should be important enough to give dignity to the judge's arrival, but need not be given too much prominence. Care should be taken to see that the entrance at which the prisoners arrive has as much privacy as possible.

The municipal offices should only be set back from the street a sufficient distance to lessen traffic noise, office buildings which are placed at the back of great open spaces being only inconvenient and annoying to reach.



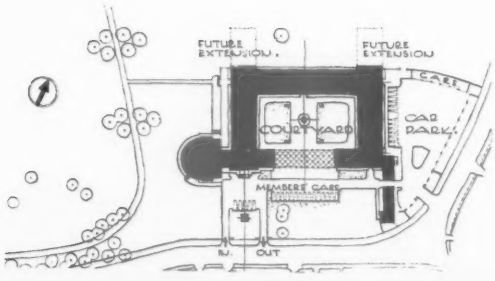
Wirral: Ground and First Floor Plans



Special Departments

If a local authority requires all departments to be placed in one building, very careful consideration should be given to the positions and entrances of the medical officer of health's clinic, the relieving officers' rooms and the juvenile employment section of the education department. On certain days of the week these three departments may have as many as a hundred visitors at a time, and it is considered that, if these departments are to be accommodated on the site with the other buildings, a small group of buildings should be provided at the back of the municipal offices, perhaps connected to it by covered ways. Messrs. C. H. James and Rowland Pierce's design for Norwich solved this problem by putting the juvenile employment bureau on the sub-ground floor, and placing the administrative offices on the ground floor above.

Thus, in considering the block plan, too much emphasis cannot be given to the importance of providing for the future. The law courts, assembly hall and mayor's reception rooms will probably never require enlarging, but the municipal offices may double their present capacity in twenty years.



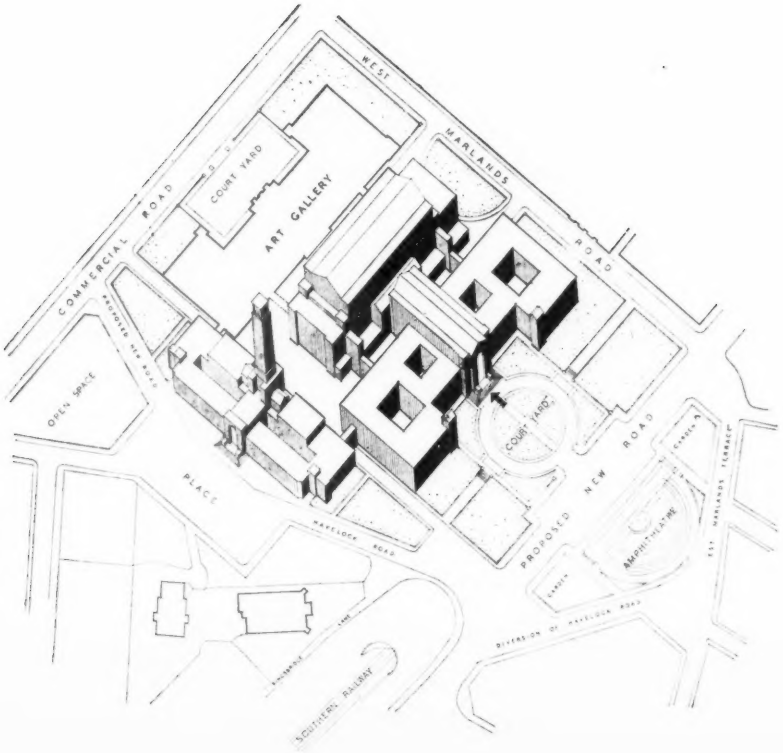
Hertford: Site Plan

PLANS

ON the following pages appears the first of the municipal building schemes which will be fully illustrated in this section.

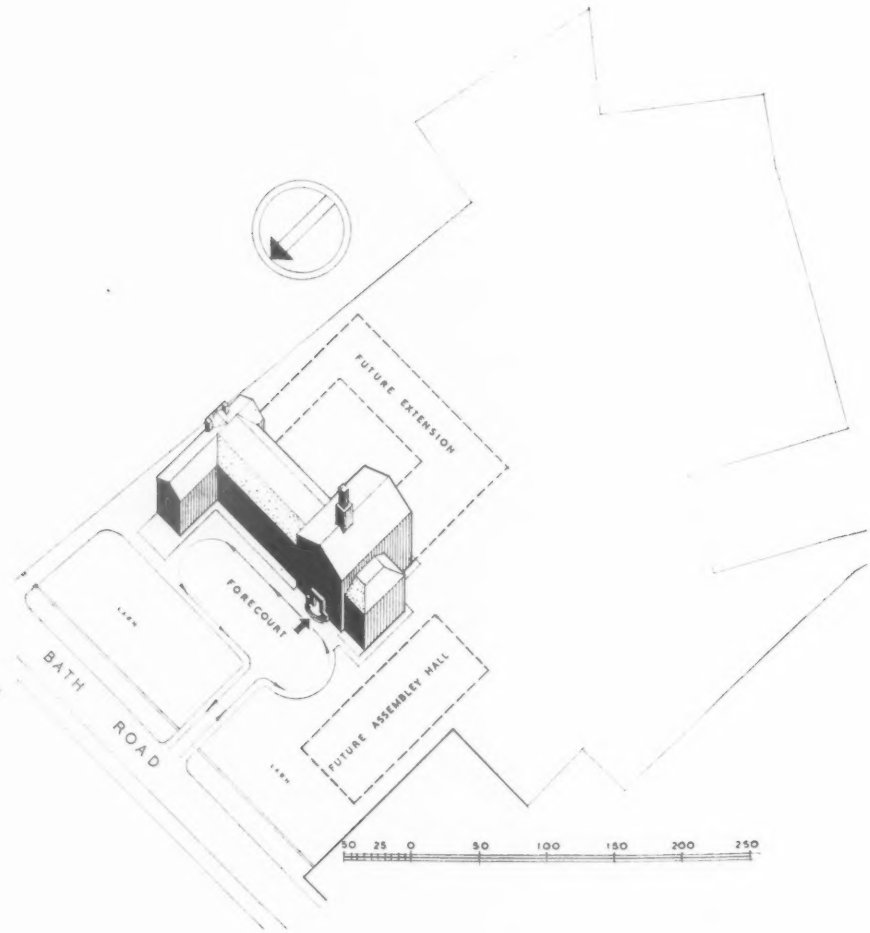
In selecting and preparing the schemes for illustration it wa intended that each, besides being the winning design in an open competi tion, should represent a slightly different attitude of mind towards th best plan solution for a Town Hall : that each should be a solution t differing conditions as to size and site location : and that each schem should be reproduced as clearly as possible for all purposes of reference

It has been considered in addition that no civic centre can be entirel satisfactory for a community unless its designers have knowledge of th population, principal activities, town-planning and surroundings o the town for which they are building. In order that these factors shoul be borne in mind and for purposes of comparison, a small-scale site pla and a brief statistical summary are incorporated in the presentation o each scheme.



TOWN HALLS

SLOUGH • By C. H. James and Rowland Pierce



SLOUGH

Urban District in Buckinghamshire. Growing rapidly. Within the administrative area lies the great manufacturing centre known as the Trading Estate. This combrises more than a square mile of level land, and accommodates about 150 trading concerns. The Estate was originally the Government motor repair depot.

POPULATION

1921 Census	*20,285*
1931 Census	*33,530*
1934 (estimated resident population)	*38,810*

RATEABLE VALUE AND RATES

Rateable value (April, 1934) .. *£305,063*
Local rates (1934-35) .. *9s. 8d. in the £*

SIZE OF HOUSES

Average size of occupied dwelling (1931) .. .. *5.18 rooms*

PRINCIPAL OCCUPATIONS

N.B.—Persons "Out of work" are included in the occupied. "Unoccupied and Retired" are shown separately.

Figures are from 1931 Census returns and relate to males and females aged fourteen years and over.

Only those occupation-orders in which more than a thousand males or more than a thousand females were placed are shown separately below, and the order "Other and Undefined Workers" has been ignored.

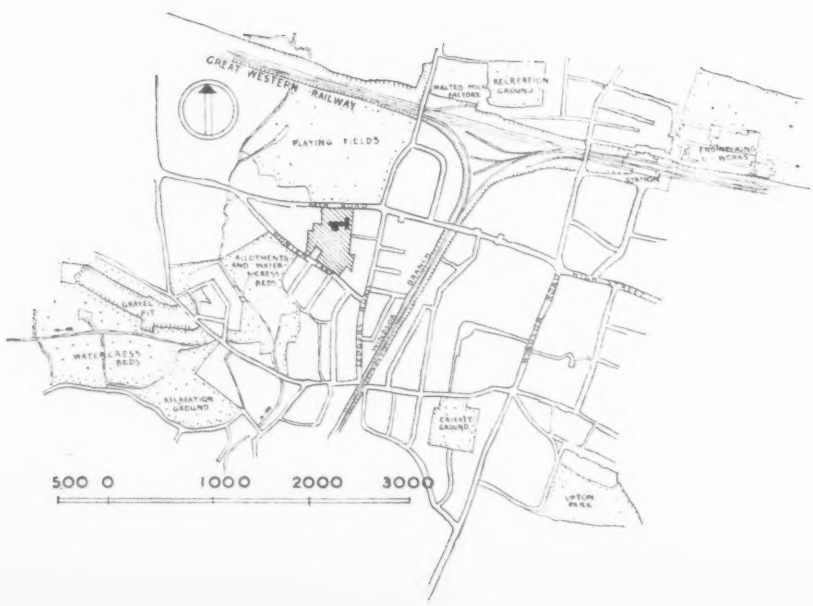
The total of occupied persons of each sex is, however, indicated above the figure for "Unoccupied and Retired."

MALES

Metal Workers	*1,606*
Commercial, etc. (excl. clerks)	*1,313*
Clerks, draughtsmen, typists ..	*1,135*
Occupied	*12,093*
Unoccupied and retired ..	*890*

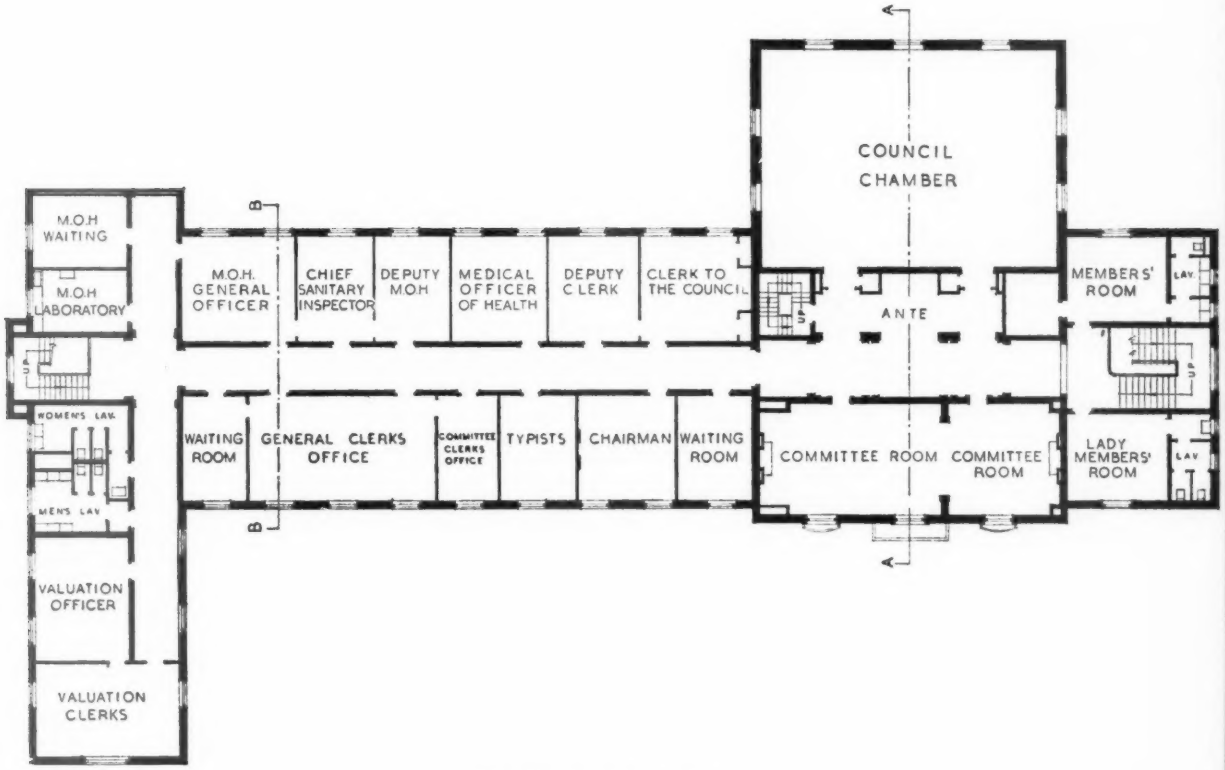
FEMALES

Personal service	*1,330*
Occupied	*4,244*
Unoccupied and retired ..	*8,856*

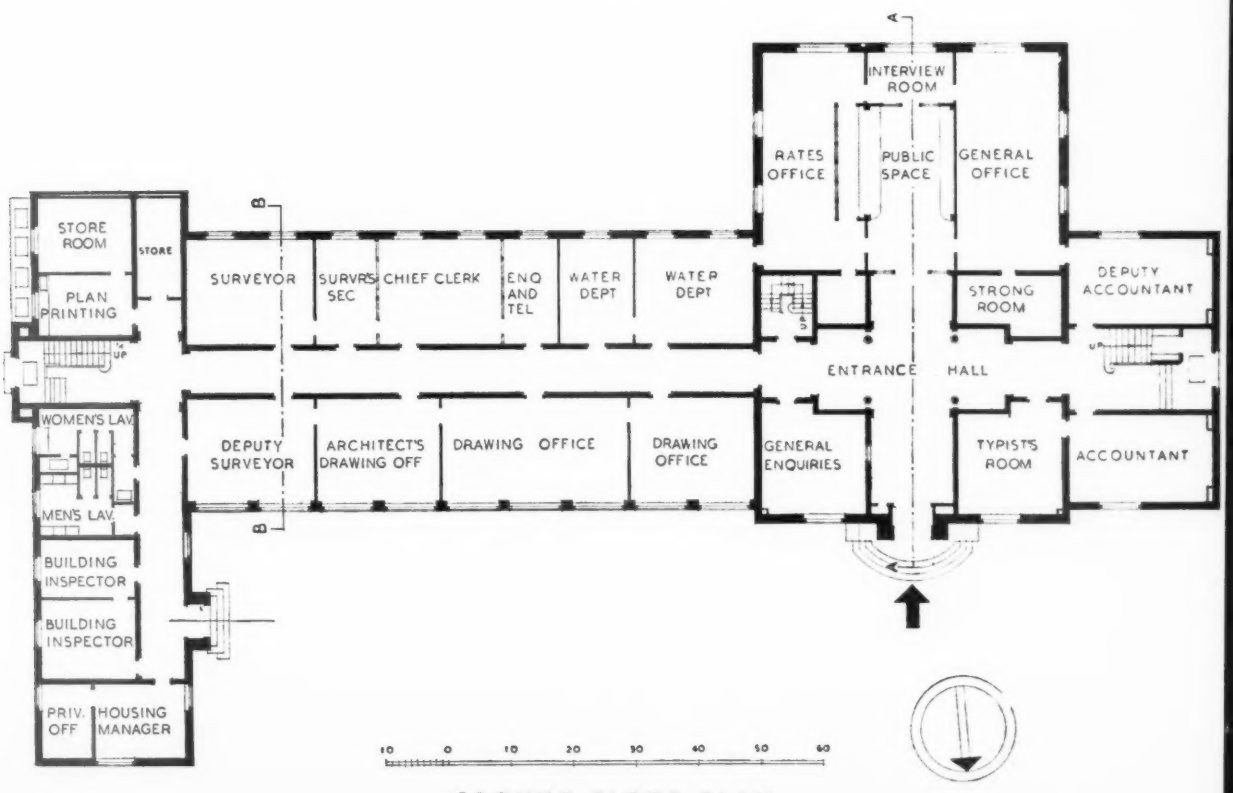


TOWN HALLS

SLOUGH • *By C. H. James and Rowland Pierce*



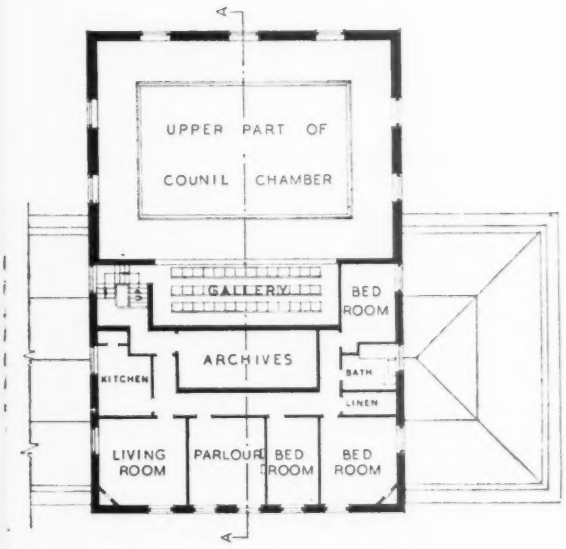
FIRST FLOOR PLAN



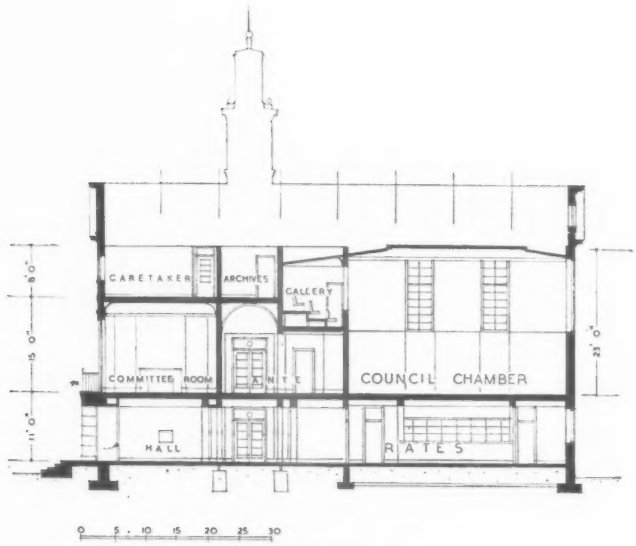
GROUND FLOOR PLAN

TOWN HALLS

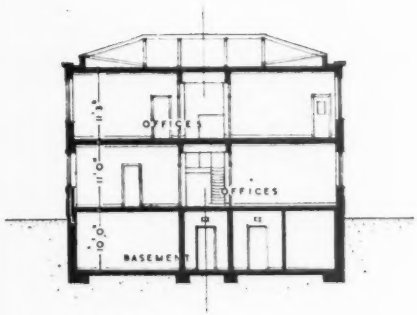
SLOUGH • *By C. H. James and Rowland Pierce*



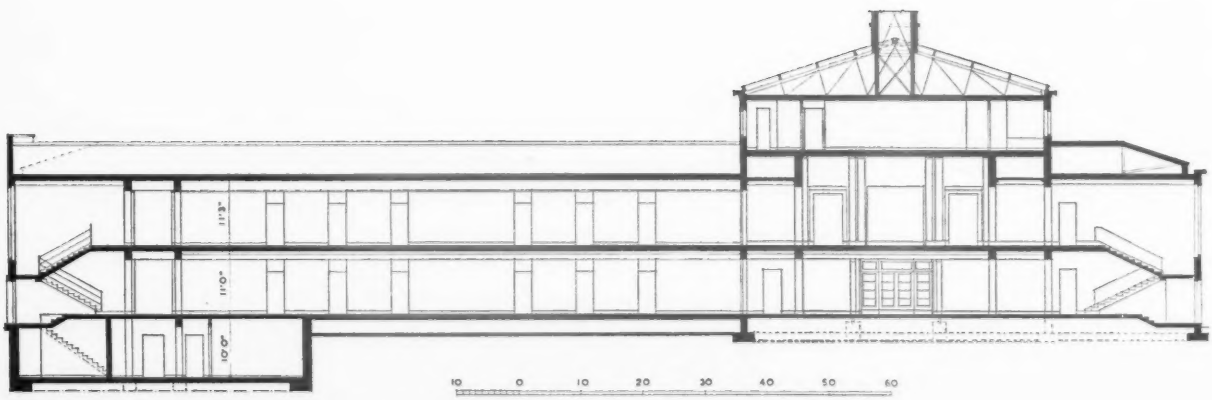
SECOND FLOOR PLAN



SECTION A-A



SECTION B-B



LONGITUDINAL SECTION

ATTACK FROM THE AIR

PRECAUTIONS IN BUILDINGS

[The article printed below is a translation of the instructions recently issued by the Italian Ministry of the Interior concerning the building of air-raid shelters, and for rendering buildings and service mains less vulnerable to attack from the air.]

THE object of the present rules, compiled in accordance with modern building technique, is to minimize the effects of air-raids.

A. SITUATION, GROUND PLAN, STRUCTURE

2. Situation.—The need for increasing the extent of unbuilt areas and of separating buildings by large squares, gardens and streets, must be taken into consideration in planning new buildings or improvements, with the double object of reducing the number of effective hits and of preventing the spread of fires resulting from incendiary bombs.

The formation of "industrial zones" must be avoided, also the central grouping of public buildings, banks, etc., as these will be the principal targets of air attacks.

All public buildings, such as barracks, colleges, schools, hospitals, institutions, convalescent homes, and all buildings which do not need to be inside the city, should be built in the outer zones.

Small targets, such as private explosive stores, electric power stations, etc., should be underground if possible.

3. Ground Plan.—Types similar to those of surrounding buildings should be used, avoiding any outstanding features. This rule applies principally to barracks, electric power stations, etc., and particularly to isolated buildings which might easily be identified. It is less necessary in the centre of a city where the large number of buildings makes it difficult to identify any one of them from the air.

Courtyards enclosed on all sides are to be avoided as far as possible, and buildings should be laid out so far as is possible in the form of ⌊, +, ⌊, etc

4. Structure.—Buildings of several floors are preferable except where these are not desirable owing to special circumstances.

Reinforced concrete is also to be preferred, with strongly built floors and walls of light construction. Floor girders, if of reinforced concrete, should be cross-braced, or even crossed in cases where the length and width of the floor are equal.

The smaller the number of floors, the greater should be their strength.

Buildings of timber and other inflammable material should be prohibited.

In new or reconstructed buildings, roofs should be of steel or of reinforced concrete.

Attics should be accessible and have a reinforced concrete floor.

B. CONSTRUCTION OF AIR-RAID SHELTERS

5. General.—Every new building should have shelters capable of holding at least half its occupants. These buildings should be proof against :—

Explosive, gas and incendiary bombs.

Toxic liquids sprinkled by low-flying aeroplanes.

Air movements caused by nearby explosions.

6. Capacity.—No shelter should hold more than twenty to thirty people. Where this number is exceeded, shelters must be divided so that no one section holds more than that number.

Shelters must be mostly or wholly underground and near to staircases for ease of access.

Where otherwise impossible, shelters may be on the ground floor, or completely isolated from the building, or built against the building.

7. Collective Shelters.—Shelters for public employees, workpeople, etc., and for public or first-aid centres, etc., are to be built by :—

The State, for its own personnel.

Local authorities, for all their servants.

Private establishments, etc., for their workers, etc.

8. Protection.—The thickness of roofs and walls of shelters, if underground, should be in accordance with the nature of the superstructure, i.e. the number and strength of floors, etc.

In determining the maximum penetration, the resistance which will be offered by the floors is to be taken into account. That is to say, the roof should be of reinforced concrete of a thickness of 1 m. 75 (5 ft. 10 in.), less ten to twelve centimetres (4 in. to 5 in.) for each reinforced concrete floor above it. It is advisable for the roof to be separate from the floor above.

Reinforced concrete roofs should have a double reinforcement of 15-20 mm. ($\frac{5}{8}$ in. to $\frac{3}{4}$ in.) rods, with a twenty cm. (8 in.) mesh, placed a few centimetres below the top and above the bottom of the roof, the top of which should be suitably curved (in the form of ⌒). Parallel reinforcement is to be avoided as it may form strata (planes of separation), and care should be taken that the roof reinforcement is strongly joined to that of the walls.

The above rules are for reinforced concrete shelters : where other materials are used, they should have an equivalent resistance. Doors must be airtight, if possible double, and suitably spaced.

Shelters must have two entrances, one of which should lead on to a street or an open courtyard of ample size.

9. Ventilation.—Shelters should have a supply of at least one cubic metre per person-hour of artificially pure air ; this air must be passed through absorbent and neutralizing filters. Sufficient air should also be available to obtain an over-pressure of 5 mm. of water more than that needed to overcome the resistance of the filters and the friction loss in the piping, so as to prevent poison gas from entering. The air should be uniformly distributed over the shelter by electrically driven ventilators, workable also by hand.

10. Lighting.—As, during air attacks, public lighting is little used, shelters may be lighted by electricity ; where this is not possible, the best available method is to be used, preferably accumulator lighting.

11. Accessories.—Shelters must be supplied with water, latrines, ventilation piping, etc., and should be so built that the above plant (filters, ventilator fans) can be rapidly installed on mobilization.

C. PROTECTION OF MAINS

12. Electric Light and Power Mains.—For ease in repairing air-raid damage, the number of lines of communication between power stations, sub-stations, etc., should be increased as far as is possible without incurring costly reserve installations.

13. Gas Mains, etc.—While, for economic reasons, it is not possible to decentralize the gas service, especially with modern distillation plants, new gas works should, as far as convenient, be placed far from populated centres.

Gasometers, however, can often usefully be decentralized, i.e. the number of supply centres on the outskirts of the town can be increased. This improves the service, is of public utility in times of peace, and reduces air raid risks. The number of mains and of gasometers should be increased as far as convenient.

It is above all necessary to have a shut-off valve in each gasworks, to enable gas to be cut off during air raids.

14. Water Mains.—Underground tanks should be built, of a capacity of 50 to 100 cubic metres, and at not more than

500 metres from each other. This series of tanks may be connected with smaller tanks of ten to thirty cubic metres to be built in courtyards, patios, etc., of new buildings.

15. General Rules for All Mains.—They should not be near the surface and, with the exception of gas mains, should be laid in underground tunnels protected above, especially at vital points. Gas mains should not be in the same tunnels as other mains.

16. Bomb Penetration.—Medium weight bombs, falling from the average height of bombardment, penetrate about 40-50 cm. into cement; about 1 m. 20 into solid brick, and further into hollow brick. To allow for this and for the force of explosion, a thickness of covering of about 80 cm. is indicated. In view of this, three hypotheses can be stated :—

a. The bomb explodes before touching the top of the shelter : in this case, the roof of the shelter must be sufficiently strong to stand the weight of the collapsed superstructure. For this a thickness of 35-40 cm. of reinforced concrete is sufficient, with walls of 15-20 cm.

b. The bomb explodes immediately it touches the top of the shelter : for such case, a thickness of 80 cm. is needed with walls of 20-25 cm.

c. The bomb penetrates into the roof of the shelter (this will happen only where the floors above are not sufficiently strong) : for this case, a thickness of at least 1 m. 25, measured from the point of maximum penetration, is necessary, with walls of 30-40 cm.

A shelter for twenty persons may be five to six metres in length, with the occupants in two rows sitting alongside the walls, so that each will have 50-60 cm. of wall space. Such a shelter should not be more than two metres in width, so that a passage of 40 cm. will be left. If the width is increased to 2 m. 80, a further ten persons may be accommodated standing in the middle, thus bringing the occupants up to the maximum of thirty. Such a shelter can nearly always be made underground or in two communicating rooms.

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 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.]

Discharge of Oily Substance in a Subway

¶ *A BOROUGH engineer reported the appearance of an oily discharge in a subway which had recently been constructed. The subway consisted of reinforced concrete walls, floor and ceiling, and had been "tanked" with asphalt externally.*

The walls had been rendered in a Portland cement-sand mix, and the internal finish consisted of glazed lining fixed to the concrete by a mastic, the surface of the concrete having previously been treated with a sealer. The oily exudation had appeared a few months after some of the work had been completed. Samples of the mastic and sealer were submitted.

A qualitative examination of the sample of oily discharge was made. The material was alkaline and was of the nature of a soap. It was very similar to the exudation frequently seen on the surface of oil paint which has been applied to an alkaline surface.

In view of this result there appeared to be little doubt that the discharge was the result of chemical attack on the sealer or the mastic used for fixing the lining, or both, by the alkalis present in the Portland cement backing. It was considered unnecessary to make a complete analysis of the sample ; instead experiments were carried out on the samples of the sealer and mastic in order to determine whether they were indeed liable to become attacked in this way.

Three slabs, each measuring 12 in. by 12 in. by 1 in., were made from a 1 : 3 Portland cement-sand mortar. After three days the top surfaces of the slabs were treated as follows :—

Slab A—two coats of sealer.
Slab B—two coats of sealer followed by one coat of mastic.
Slab C—one coat of mastic.

Twenty-four hours elapsed between the application of successive coats. The treated slabs were allowed to remain untouched for two days and were then placed, with the treated faces uppermost, on wet cotton wool in shallow trays.

Four days later the sealer on slab A began to show signs of stickiness. At the same time the mastic on slabs B and C which had previously adhered firmly, was found to have lost adhesion; by slight pressure with the finger, the coating could be moved about on the surface of the slabs.

The slabs were next placed in a damp cupboard. The action then became very much intensified, and in two days the sealer on slab A was so badly attacked that it could all be washed off easily by a gentle stream of water. The mastic on slabs B and C could be peeled off easily, and in each case the underside was softened and sticky.

It was therefore concluded that both the sealer and the mastic were susceptible to chemical attack when applied to damp Portland cement.

Tests similar to the above were also carried out on slabs made with Portland cement containing a proprietary integral waterproofer, comparable with that in the work. In this case also the sealer and mastic were attacked, although more slowly than in the first test.

The conclusion to be drawn from this investigation is that the walls and cement rendering in the subway were in a damp condition when the sealer and mastic were applied, and that under the prevailing conditions these materials were attacked by alkalies and thus gave rise to the discharge.

The effect is not necessarily connected with the *proportion* of oil in the sealer or mastic, but is probably connected with its *nature* and that of the other ingredients. It was considered likely that the attack will continue and eventually the sealer and mastic may become completely destroyed, and careful examination of the work was recommended.

Damp Penetration through Brickwork

¶ *DURING the past months the number of enquiries regarding the penetration of damp through brickwork has been considerable, due, no doubt, to the abnormal rainfall experienced during this period. In many of the enquiries it has been stated that until this year no trouble had been experienced. The following general observations on the problem may therefore be of assistance.*

1. There can be no assurance that a solid brick wall, whether rendered or not, will be immune from damp penetration.

2. A solid wall provides capillary paths from the exterior to the interior. In the case of 9 in. brickwork, the headers provide a direct capillary path : in thicker solid walls, the mortar provides a bridge between the bricks.

3. On account of (2) if the external face of the wall is kept wet for a sufficient period, the moisture must at some time appear on the internal face.

4. Therefore from (3) it will be seen that the degree of security offered by any given solid wall will be dependent on weather conditions. In seasons of small rainfall, the dry intervals will permit drying out of the brickwork. It is apparent then that the balance between wet and dry periods can in some cases be the factor deciding whether penetration does or does not occur.

5. The liability to penetration will be influenced by the exposure of the wall. In positions subject to high winds, the pressure exerted by the wind may accentuate the rate of penetration of moisture through the bricks.

6. Penetration may occur either through the bricks or mortar. In this respect a

plain cement mortar is on the whole less suitable than a cement-gauged lime, or a hydraulic lime mortar. This is due :

(*a*) to its greater shrinkage, forming cracks which provide passage for the moisture ;

(*b*) to its lower workability and consequently greater difficulty in bedding and giving a good bond.

The permeability of the bricks does not necessarily control the liability to penetration. Brickwork of a dense impermeable brick set in cement mortar may have no advantage over brickwork of a less permeable brick set in a cement-lime or lime mortar. The brickwork must be considered as a whole.

7. Where penetration occurs around windows, doors, near chimney breasts, near parapet walls, but not elsewhere, the possibility of defective construction should first be considered.

8. In cases where penetration occurs only after a period of heavy rainfall, and no trouble has been experienced possibly for periods of some years, and no defects in the construction can be discovered, benefit may be derived from the use of a colourless waterproofer. This waterproofer may provide that reduction of permeability necessary to secure freedom from penetration. On the other hand, in severe cases the reduction may not be sufficient to throw the balance against penetration. The tests carried out at the Station show that some colourless waterproofers may provide just sufficient added impermeability in severe weather to prevent penetration, and it is considered that they may be effective for a winter, or perhaps two, and this may be very valuable. Permanent protection cannot be expected.

9. Other types of waterproofing materials which may be mentioned are :—

(*a*) The so-called "stone paints," white or coloured.

(*b*) Bituminous paint, black, also coloured bituminous preparations.

(*c*) Ordinary oil paints.

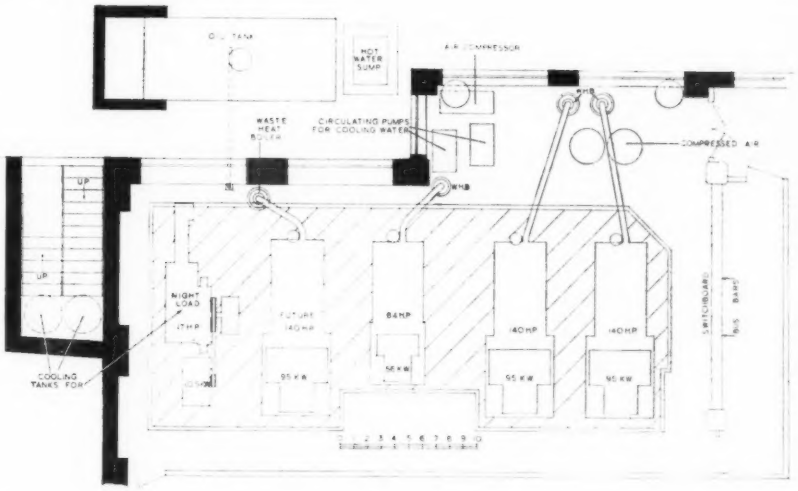
These give more permanent results, but of course alter the appearance of the work.

10. A rendering increases the protection afforded, but again it is apparent that in time moisture can penetrate to the interior. A direct capillary path is provided. The increased resistance afforded by the rendering is, however, often so considerable that a defective wall is made amply waterproof. Cracking reduces the efficiency of the rendering.

11. The major objection to defective pointing is that it provides catchment points for water.

12. Finally, it should be noted that where any material in the nature of concrete, brick, stone, mortar, i.e., a porous material having a capillary structure, forms a continuous path from exterior to interior penetration is always theoretically possible. The thickness and the permeability of the material, the weather conditions and degree of exposure will decide whether penetration will or will not occur.

13. Only when the capillary path is completely broken can assurance be given that penetration will not occur. The cavity wall, if properly constructed with average quality bricks, enables this assurance to be given.



TRADE NOTES

[*EDITED BY PHILIP SCHOLBERG*]

Private Generating Stations

SMALL generating plants for use outside the areas of the ordinary supply company are common enough, and are indeed the only solution to the problem, but even in urban areas it is often possible to show a saving in current costs over the normal supply company's rate, particularly when the total load is reasonably large and constant.

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The plan and photograph on this page show a new plant recently installed at Heal's shop in the Tottenham Court Road, where the load is mainly lighting with a battery of lifts as well. At present the total output of the plant is 246 kilowatts, but provision has been made for a fifth engine which will provide a further 95 kilowatts.

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Vibration has been taken care of by isolating the whole of the engine raft (shaded on the plan) with cork. Exhaust gases are passed through waste heat boilers which warm the feed for the hot water system ; cooling water from the engine jackets is pumped to a cooling tower on the roof and returns by gravity.

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The night load is considerably lower and is taken care of by a separate 10 kilowatt unit, which is arranged to run unattended, and there is also an emergency supply which can be taken from the public mains.

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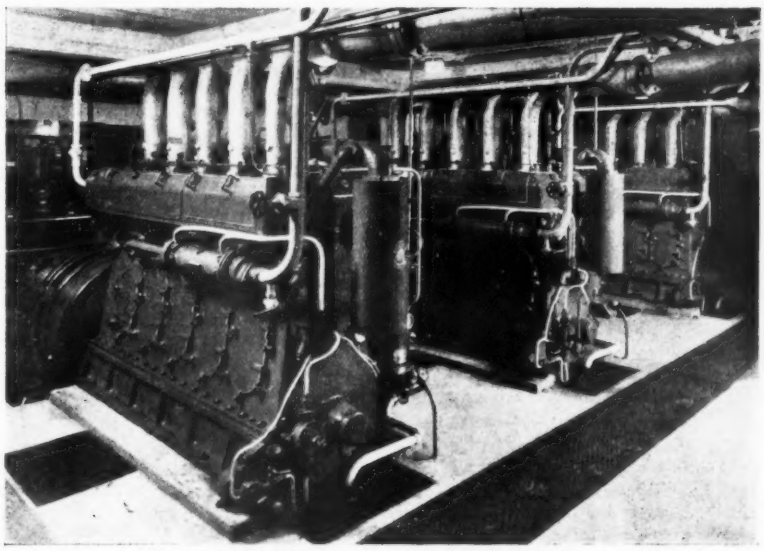
The cost of the installation was approximately £7,000, and it is estimated that the saving in costs will be about £500 a year, as the company's rate worked out at 2·122 pence per unit, whereas with the Diesel plant it is as low as 1·43 pence per unit,



Ruston and Hornsby cold-starting Diesel engines in Heal's new generating plant.

allowing for all charges, including depreciation.

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The architects were Messrs. Smith and Brewer and the main contractors were Messrs. Barlow and Young.

Flooring Tiles

Carraratile comprises a new range of comparatively low cost flooring tiles, composed largely of quartz aggregate, reconstructed under hydraulic pressure to 1½ tons per sq. in. The tiles are normally made, to any size required, in Swedish green, Carrara white, Genoa green, Belgian black and travertine.

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The tiles are also made with non-slip surfaces. In this case they have harder aggregates, principally quartz silica. The non-slip tiles also are made to any size, with various surface textures, and are, I understand, now being laid for the L.P.T.B. at Monument Station.

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A third type—the Carrara non-slip Roman tile—is made with an indented surface in standard 9 in. by 9 in. by ¾ in. squares. This tile is particularly useful where heavy foot traffic is expected or where security against slipping is essential. It should be ideal for swimming bath surrounds, since it is claimed that the surface gives absolute safety to the tread of bare, wet feet.

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The tiles are also made with patterned surfaces that allow a variety of geometric designs to be arranged on floors or walls. Reports of tests for rate of wear, resistance to freezing and boiling, and drying shrinkage and moisture movement are available from the manufacturers.

F. R. S. Y.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

All-Hallows Church

Mr. Mander asked the Hon. Member for Central Leeds, as representing the Ecclesiastical Commissioners, if he would state the present position with regard to the scheme made under the Union of Benefices Act, 1860, involving the sale of All-Hallows Church, Lombard Street, what objections had been raised to the carrying out of the scheme, and what action was being taken.

Mr. Denman said that the scheme to which the Hon. Member referred had not yet been submitted by the Ecclesiastical Commissioners to His Majesty in Council, though he expected them to pass the necessary Minute at their meeting on the 20th. An individual claiming to be a parishioner and a conference representing certain archæological, artistic and other societies had sent protests to the Commissioners which would be sent on to the Privy Council with the scheme. It was understood that the Corporation of London had also sent a protest direct to the Privy Council.

Letter Boxes

Mr. Banfield asked the Postmaster-General whether he proposed to request householders to use letter boxes and to fix these letter boxes in a position in the front door where they would be reasonably convenient to the postman serving the district.

Major Tryon said that he was considering this question and he was glad to say that the Architectural and Building Trade Associations had already expressed their wish to co-operate in ensuring the provision of letter boxes with an aperture measuring at least 8 in. by 1¾ in., which was the most suitable size.

Special Areas Fund

Mr. Sexton asked the Minister of Labour whether local authorities building houses under the Housing Acts would be granted, in addition to the annual amounts of appropriate contribution from the Exchequer, grants from the special areas fund, as proposed to be given to the North Eastern Housing Association, Ltd., and thus relieve the prevailing high rates of any additional burden.

Mr. E. Brown said the Commissioner for the Special Areas had no power to offer a general subsidy of the kind suggested; but to the extent to which local authorities in areas covered by the Public Utilities Society referred to availed themselves of its services they would, in fact, be relieved of the burden of rates which would otherwise fall on them in respect of housing schemes for slum clearance and abating overcrowding.

Building Industry

Mr. Gallacher asked the Minister of Labour whether he would consider introducing amendments to the regulations governing the payment of unemployment benefit whereby workers in the building trade, who normally lost an average of two months work per year through bad weather conditions, should not have to wait the normal six days before qualifying for benefit, nor have to be stopped three days in one week before qualifying.

Mr. Brown said that the conditions for the receipt of unemployment benefit to which the Hon. Member referred were of general application, and he had no power to modify them in the case of any particular industry.

Housing

Mr. Whiteley asked the Minister of Health whether a local authority which had developed its own works department on successful lines would be compelled to dissolve such department should they join a housing association.

Sir K. Wood said that a local authority might make arrangements with a housing association in respect of a part or the whole of its building programme, and the continuance of a special works department would depend on the amount of building which the authority retained in its own hands.

Mr. Whiteley also asked whether a local authority which refused to link up with a housing association would receive the same financial assistance towards its housing schemes as those local authorities connected with housing associations.

Sir K. Wood said that the amount of Exchequer subsidy payable under the Acts in respect of a house was the same whether the house was provided directly by the local authoritiy or under arrangements made between the local authority and a housing association. A local authority which made such arrangements was under no obligation to contribute from the rates towards the expense of houses built by the association except in so far as the arrangements so provided.

Mr. Temple Morris asked the Minister of Health whether his department had received any statistics to show the extent of overcrowding under the Housing Act of 1935; and, if so, whether he could give details.

Sir K. Wood said he had fixed, after consulting the local authorities, April 1 as the date by which the overcrowding surveys in all areas were to be completed. His information was that these surveys were proceeding satisfactorily, and he had already received statistical reports from 17 local authorities. It would not be possible to give general overcrowding statistics until the reports from all authorities were in his hands.

Mr. Strauss asked the Minister of Health how many local authorities had applied to him under the powers granted in the Housing Act, 1935, Section 25, to establish housing management commissions; and how many applications had been granted.

Sir K. Wood said that no such application had as yet been received; the second part of the question did not therefore arise.

THE BUILDINGS ILLUSTRATED

DORSET HOUSE, MARYLEBONE ROAD, W. (pages 333-338). The general contractors were Messrs. Gee, Walker and Slater, Ltd. The principal sub-contractors and suppliers included :—

Goodman Price, Ltd., demolition, excavations; Ragusa Asphalte Paving Co., Ltd., dampcourses, asphalt; J. Alfred Pratt and Co. (1928), Ltd., bricks; Wandsworth Stone Masonry Works, stone; D. G. Somerville & Co., Ltd., artificial stone; Redpath Brown & Co., Ltd., structural steel; Caxton Floors, Ltd., fireproof construction; F. A. Norris & Co., Ltd., patent glazing; Horsley Smith & Co., Ltd., wood-block flooring; Richard Crittall & Co., Ltd., central heating, ventilation; Bratt Colbran & Co., Ltd., grates; Edgars, Ltd., gasfitting; Self-Stoke Boilers, Ltd., self-stoke boilers; Electrical Installations, Ltd., electric wiring; Troughton and Young, Ltd., electric light fixtures; Doulton & Co., Ltd., sanitary fittings; Diespeker & Co., Ltd., stairtreads; Carter and Aynsley, Ltd., door furniture; Crittall Manufacturing Co., Ltd., casements; Electrical Installations, Ltd., bells; Potter Rax Gate Co., Ltd., folding gates and rolling shutters, metalwork; H. H. Martyn & Co., Ltd., metalwork; Joseph Whitehead and Son, Ltd., marble; Tile Decoration, Ltd., tiling; Maple & Co., Ltd., textiles; Bratt Colbran, mantels; John Barker & Co., Ltd., furniture; Cooke's (Finsbury), Ltd., shop fittings; Doulton, cloakroom fittings; Hammond Bros. and Champness, Ltd., lifts; Smith's English Clocks, Ltd., clocks; Le Grand, Sutcliff and Gell, Ltd., water supply; Becco Engineering and Chemical Co., Ltd., water-softening plant; Major Equipment Co., Ltd., signs; Cellulin Flooring Co., floors in kitchens; A. Johnson & Co., Ltd., Savestane sinks; F. McNeill & Co., Ltd., insulated partitions; National Radio Service, Ltd., wireless installation.

LINEN SHOP, SHERINGHAM (page 342). The general contractors were J. W. Palmer and Co., the principal sub-contractors and suppliers included :—

M. Dunn, demolition; Permanite, Ltd., lead Bitu dampcourses, roofing felt; Dawnays, Ltd., structural steel; Pilkington Bros., Ltd., glass; G. Lee, electric wiring; General Electric Co., Ltd., electric light fixtures; Crittall Manufacturing Co., Ltd., casements—steel lights; Artistic Blind Co., sunblinds, Dutch bricks, Travertine marble.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BARNES. *Clinic.* The Surrey Education Committee has approved plans for the proposed erection of a new combined clinic and tuberculosis dispensary at Barnes, at an estimated cost of £5,000.

COULSDON. *Development.* Messrs. Hooker and Rogers are to redevelop land at the junction of Brighton Road and Lion Green Road, Coulsdon.

CITY. *Building.* Mr. Henry Tanner is to erect premises on the site of Market Buildings, 29 Mincing Lane and 26-8 Mark Lane, City of London.

EALING. *Sub-station.* A trolley-bus sub-station is to be erected for the London Passenger Transport Board at Haven Green to plans by Mr. S. A. Heaps.

EALING. *Houses.* Mr. A. E. Murdoch is to erect 33 houses at Currey Road and Carr Road, to plans by Messrs. Swannell and Sly, High Street, Rickmansworth.

EALING. *Schools.* The T.C. has approved estimates for the current year as follows: Ealing: Dibdin School £9,800, furniture £700. Hanwell: St. Ann's School (enlargement) £4,200, furniture £300; Cuckoo Estate £39,900, furniture £2,400. Greenford: Coston's Senior Girls' School £17,500, furniture £800; Stanhope School (enlargement) £8,400, furniture £480; Perivale Senior Girls' School £16,500, furniture £800. Northolt: Walford School £22,400, furniture £1,600. Sites for three schools and other minor alterations make a total of £155,174. The Borough Engineer and Surveyor is the Council's architect.

EALING. *Houses.* Messrs. B. Smith and Son (Builders), Ltd., Western Avenue, Ealing, W.5, propose to erect 59 houses at Girton Road.

EALING. *Shops, etc.* Eleven shops with 11 flats over are to be erected at Ruislip Road by Messrs. Colrose, Ltd., 27 Green Lane, Northwood, Middlesex.

EALING. *Flats.* Mr. H. Paul, Surveyor to the Abbey Road Building Society, has prepared plans on behalf of Mr. P. Brown for the conversion of 40 houses into 80 flats at Allenby Road, Verulam Road and Braund Avenue.

GREENFORD. *Additions.* Messrs. Wills and Kaula, 22 Southampton Street, W.C.1, have prepared plans for the erection of additions to the factory premises of Messrs. Sewing Silks, Ltd.

NORTH HARROW. *Church.* Mr. A. Kenyon, F.R.I.B.A., 21 Bedford Square, W.C.1, has prepared plans for the proposed erection of the Church of St. Albans, at North Harrow. The plans are now being considered by the Ecclesiastical Commissioners and by the Diocesan Panel of Architects.

NORTHOLT. *Additions.* Messrs. Yates, Cook and Darbyshire, Great Marlborough Street, W.1, are the architects for alterations to grand stand and the erection of convenience blocks at the Northolt Park Race-Course.

PERIVALE. *Houses, etc.* The T.C. has now approved amended lay-out plans submitted by Messrs. Taylor Woodrow Estates, Ltd., Southall, for 108 houses and 47 garages at Bilton Gardens, Jubilee Road and George Fifth Way.

RICHMOND (SURREY). *Houses.* The T.C. are budgeting for the purchase of land for 24 houses and the erection of 100 houses during the year.

ST. PANCRAS. *Flats, etc.* Plans passed by the B.C.: Rebuilding, 301, Kentish Town Road; flats site of 39-40 Park Street; factory, Hawley Crescent; shops, showrooms and offices, Euston Market, Euston Road.

WESTMINSTER. *Extensions.* Mr. Andrew Mather has prepared plans for extensions at the premises of the Automobile Association in Coventry Street, Westminster.

WHITECHAPEL. *Nurses' Home.* The L.C.C. has purchased land for the erection of a nurses' home for the St. Peters Hospital, Whitechapel.

WESTMINSTER. *Flats, etc.* Plans passed by the City Council: Flats, 19-18 Ennismore Gardens, for Mr. Gordon Jeeves; alterations, 23 Eaton Square, for Messrs. Stanley Hall and Easton and Robertson; offices, 1 Grosvenor Place, for Sir Aston Webb and Son; flats, 59-63 Princes Gate, for Mr. G. M. Adie: modernizing 30 Wilton Crescent and houses at rear, for Mr. F. Etchells; reconstruction, Paviors Arms Hotel, New Street, for Messrs. T. P. Bennett and Son; conversion to women's hostel, 41 Eccleston Square, for Messrs. R. C. Watson & Co., Ltd.

SOUTHERN COUNTIES

HILDENBOROUGH. *Development.* Mr. A. P. Rogers is to develop the Hilden estate, Hildenborough, Kent.

HYDE. *Houses, etc.* Plans passed by the Corporation: 66 houses, Marlborough Road, for Messrs. Dean and Whipp; extensions to works, Talbot Road, for Messrs. Aveyard Bros.; dairy extensions, Godley Green Farm, for Mr. E. A. Hawkes; seven shops, Dowson Road, for Mr. W. G. West.

HYDE. *School.* The Hyde Education Committee is to acquire a site at Flowery Field for the erection of a junior school.

HYDE. *Extensions.* Hyde Corporation has instructed the borough engineer to prepare plans for extensions at Back Bower Hospital.

KENT. *Mental Hospital.* The Kent C.C. recommends fixing a sum of £750,000 for the scheme for the provision of a new mental hospital on a site to be selected.

KENT. *Extensions.* The Kent C.C. has approved a revised scheme for extensions at Barming Mental Hospital at a cost of £61,000.

TANKERTON. *Development.* Messrs. E. J. Pout and Sons are to develop the South Tankerton estate, on the coastal road near Tankerton, Kent.

SOUTH-WESTERN COUNTIES

REDRUTH. *Church.* Work on the erection of a new R.C. church has just been commenced. The church is being erected on a site at the Peventon Estate, to plans prepared by Mr. J. E. Walter, of Paignton. The contractors are Messrs. Walters and Co., of Redruth.

EASTERN COUNTIES

GORLESTON. *Police Station.* The Yarmouth Corporation has purchased a site in Suffield Road, Gorleston, for the erection of a police station.

YARMOUTH. *Houses, etc.* Plans passed by the Corporation: Three houses, Lowestoft Road, for Mr. W. West; two houses, Burgh Road, for Messrs. H. Bedwell and Son; club room, 51 South Quay, for Labour Party; cinema, High Street, Gorleston, for Mr. E. Norman Bailey; two houses, Blake Road, for Messrs. C. L. Leach and Son.

YARMOUTH. *Houses.* The Corporation is to acquire sites in Lawn Avenue for the erection of 30 houses and on the North Denes for 250 houses.

YARMOUTH. *Extension.* The Corporation has had plans prepared by the borough engineer for the extension of the yacht station at a cost of £25,700 and has decided to submit them to the Port Commissioners.

YARMOUTH. *School.* The Education Committee is to erect a senior school on the Leach estate, at a cost of £9,600.

NORTHERN COUNTIES

BRADFORD. *Additions.* The Bradford Corporation has approved plans for the erection of an additional block at the Westwood mental institution.

BRADFORD. *Extensions.* The governors of St. Bede's Grammar School, Bradford, have prepared a scheme for extensions at a cost of £30,000.

CARLISLE. *Houses, etc.* Plans passed by the Corporation: 12 houses, Lansdowne Crescent, for Messrs. Blakeley and Sons; two houses, Bassenthwaite Street, for Mr. H. Foxall; two houses, Brampton Road, for Messrs. J. Laing and Son, Ltd.; two houses, Longlands Road, for Mr. E. C. Coleman.

CARLISLE. *Bus Station.* United Automobile Services, Ltd., are to acquire property in the vicinity of Lowther Street, Carlisle, for the construction of a bus station.

CARLISLE. *Houses.* The Corporation has prepared a programme for the erection during the year of 428 houses on four estates.

CROOK. *School.* The Durham County Education Committee has approved plans for the erection of an intermediate school at Crook, at a cost of £43,000.

DURHAM. *Additions.* The Governors of the Durham County Hospital are to enlarge the buildings, at a cost of £18,000.

DURHAM. *Additions.* The Durham County Education Committee has approved plans for the erection of new premises for the Johnson secondary school, Durham, at a cost of £35,000.

DURHAM. *Clinic.* The Durham County Council is to erect a school clinic in Durham.

HARTLEPOOLS. *Extension.* The Governors of the Hartlepools Hospital are to extend the premises at a cost of £32,244.

HOUGHALL. *Agricultural School.* The Durham County Council has prepared a scheme for the establishment of a school of agriculture at Houghall at a cost of £58,220.

PENSHAW. *School.* The Roman Catholic authorities are to erect a primary school at Penshaw, Durham County.

REDCAR. *Houses, etc.* Plans passed by the Corporation: Eight houses, Thrush Road, for Messrs. Crossley and Sons, Ltd.; four houses, Daisy Road, for Mr. F. Allison; two houses Winchester Road, for Mr. H. E. Gray; two houses, Whitby Crescent, for Mr. F. Jacobs; two houses, Whitby Crescent, for Messrs. T. Croskell and Son; alterations, 5, West Terrace, for Liverpool Victoria Assurance Co., Ltd.; four houses, Daisy Road, for Mr. F. Bainbridge; two houses, Whitby Crescent, for Mr. R. Cowie; estate development, Corporation Road, for Mr. Picknett; estate development, Sandy Lane, for Westfield Estate, Ltd.

SEDGLEY. *Extensions.* The U.D.C. has asked the surveyor to prepare plans for extensions at the council offices.

SEDGLEY. *Houses, etc.* Plans passed by the U.D.C.: Office extensions, Deepdale Lane, for Messrs. A. Allen and Son, Ltd.; two houses, Dudley Walk, for Messrs. Brookes and Son; six houses, Himley Crescent, for Messrs. A. A. and L. A. Moore; two houses, Dudley Walk, for Mr. S. F. Pope.

SOUTH SHIELDS. *Houses.* The Corporation is to erect 76 houses on the Harton clearance areas, at a cost of £21,255.

SOUTH SHIELDS. *Houses.* The Corporation is arranging in association with the North Eastern Housing Association, Ltd., for the erection of 468 houses in Prince Edward Road and 46 in Commercial Road.

SOUTH SHIELDS. *Houses.* The Corporation is to erect 210 houses in Quarry Lane, at a cost of £49,050.

SOUTH SHIELDS. *School.* The South Shields Education Committee has approved plans by Messrs. T. A. Page, Son and Bradbury for the erection of a senior school at Cleadon Park.

SOUTH SHIELDS. *Houses, etc.* Plans passed by the Corporation: 15 houses, Brownlow Road, for Mr. F. W. Newby; alterations, 152-6 Maxwell Street, for Mr. Howard Hill; three shops and flats, Sunderland Road, for Col. R. Chapman; five bungalows, Sunniside estate, for Messrs. G. R. Smith and Partners; 64 flats, Revesby Road, for Messrs. J. H. Morton and Son; shopping centre, Wenlock Road, for Mr. F. D. Wills.

WEST STANLEY. *Additions.* The Durham County Education Committee is to enlarge the Aldreman Wood School, West Stanley, at a cost of £14,950.

SCOTLAND

GLASGOW. *Stores.* Messrs. F. W. Woolworth and Co., Ltd., are to erect stores in Kilmarnock Road, Glasgow.

GLASGOW. *Telephone Exchange.* H.M. Office

(*Continued on page xxxvi.*)

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 5½	1 1½
A	Aberdeen ..	Scotland	1 6½	1 2
A_1	Abergavenny	S. Wales & M.	1 6	1 1½
A_2	Abingdon ..	S. Counties	1 5	1 0½
A	Accrington ..	N.W. Counties	1 6½	1 2
A_2	Addlestone ..	S. Counties	1 5	1 0½
A	Adlington ..	N.W. Counties	1 6½	1 2
A	Airdrie ..	Scotland	*1 6½	1 2
C	Aldeburgh ..	E. Counties	1 2½	11
A	Altrincham ..	N.W. Counties	1 6½	1 2
B_2	Appleby ..	N.W. Counties	1 3	11½
A	Ashton-under-Lyne	N.W. Counties	1 6½	1 2
B_1	Aylesbury ..	S. Counties	1 4	1 0
B_1	BANBURY ..	S. Counties	1 4	1 0
B_1	Bangor ..	N.W. Counties	1 4	1 0
A_2	Barnard Castle	N.E. Coast	1 5	1 0½
A	Barnsley ..	Yorkshire	1 6½	1 2
B	Barnstaple ..	S.W. Counties	1 4½	1 0½
A	Barrow ..	N.W. Counties	1 6½	1 2
A	Barry ..	S. Wales & M.	1 6½	1 2
B_1	Basingstoke ..	S.W. Counties	1 4	1 0
A_2	Bath	S.W. Counties	1 5½	1 1½
A	Batley ..	Yorkshire	1 6½	1 2
A_2	Bedford ..	E. Counties	1 5½	1 1½
A_2	Berwick-on Tweed ..	N.E. Coast	1 5½	1 1½
A_2	Bewdley ..	Mid. Counties	1 5½	1 1½
B_2	Bicester ..	S. Counties	1 3	11½
	Birkenhead ..	N.W. Counties	*1 7½	1 2½
A	Birmingham ..	Mid. Counties	1 6½	1 2
A_1	Bishop Auckland	N.E. Coast	1 6	1 1½
A	Blackburn ..	N.W. Counties	1 6½	1 2
A	Blackpool ..	N.W. Counties	1 6½	1 2
A	Blyth	N.E. Coast	1 6½	1 2
B_1	Bognor ..	S. Counties	1 4	1 0
A	Bolton ..	N.W. Counties	1 6½	1 2
A_2	Boston ..	Mid. Counties	1 5	1 0½
A_2	Bournemouth ..	S. Counties	1 5½	1 1½
B_2	Bovey Tracey	S.W. Counties	1 3½	11½
A	Bradford ..	Yorkshire	1 6½	1 2
A_1	Brentwood ..	E. Counties	1 6	1 1½
A	Bridgend ..	S. Wales & M.	1 6½	1 2
B	Bridgwater ..	S.W. Counties	1 4½	1 0½
A_1	Bridlington ..	Yorkshire	1 6	1 1½
A	Brighouse ..	Yorkshire	1 6½	1 2
A_2	Brighton ..	S. Counties	1 5½	1 1½
A	Bristol ..	S.W. Counties	1 6½	1 2
B	Brixham ..	S.W. Counties	1 3½	11½
A	Bromsgrove ..	Mid. Counties	1 5½	1 1½
B	Bromyard ..	Mid. Counties	1 3	11½
A	Burnley ..	N.W. Counties	1 6½	1 2
A	Burslem ..	Mid. Counties	1 6½	1 2
A	Burton-on-Trent ..	Mid. Counties	1 6½	1 2
A	Bury	N.W. Counties	1 6½	1 2
A	Buxton ..	N.W. Counties	1 6	1 1½
A_1	CAMBRIDGE	E. Counties	1 6	1 1½
B_1	Canterbury ..	S. Counties	1 4	1 0
A	Cardiff ..	S. Wales & M.	1 6½	1 2
A	Carlisle ..	N.W. Counties	1 6½	1 2
B	Carmarthen ..	S. Wales & M.	1 4½	1 0½
B	Carnarvon ..	N.W. Counties	1 4½	1 0½
A	Carnforth ..	N.W. Counties	1 6½	1 2
A	Castleford ..	Yorkshire	1 6½	1 2
A_2	Chatham ..	S. Counties	1 5	1 0½
A	Chelmsford ..	E. Counties	1 5	1 0½
A	Cheltenham ..	S.W. Counties	1 5	1 0½
A	Chester ..	N.W. Counties	1 6½	1 2
A	Chesterfield ..	Mid. Counties	1 6½	1 2
B_1	Chichester ..	S. Counties	1 4	1 0
A	Chorley ..	N.W. Counties	1 6½	1 2
B_1	Cirencester ..	S. Counties	1 4	1 0
A	Clitheroe ..	N.W. Counties	1 6½	1 2
A	Clydebank ..	Scotland	1 6½	1 2
A	Coalville ..	Mid. Counties	1 6½	1 2
A_2	Colchester ..	E. Counties	1 5½	1 1½
A	Colne	N.W. Counties	1 6	1 1½
A_1	Colwyn Bay ..	N.W. Counties	1 5½	1 1½
A	Consett ..	N.E. Coast	1 6	1 1½
A_2	Conway ..	N.W. Counties	1 5½	1 1½
A	Coventry ..	Mid. Counties	1 6½	1 2
A_2	Crewe ..	N.W. Counties	1 5½	1 1½
A	Cumberland	N.W. Counties	1 5	1 0½
A	DARLINGTON	N.E. Coast	1 6½	1 2
A	Darwen ..	N.W. Counties	1 6½	1 2
B_1	Deal	S. Counties	1 4	1 0
A_2	Denbigh ..	N.W. Counties	1 5	1 0½
A	Derby ..	Mid. Counties	1 6½	1 2
A	Dewsbury ..	Yorkshire	1 6½	1 2
B	Didcot ..	S. Counties	1 4½	1 0½
A	Doncaster ..	Yorkshire	1 6½	1 2
B_1	Dorchester ..	S.W. Counties	1 4	1 0
A	Driffield ..	Yorkshire	1 5	1 0½
A_2	Droitwich ..	Mid. Counties	1 5½	1 1½
A	Dudley ..	Mid. Counties	1 6½	1 2
A_4	Dumfries ..	Scotland	1 6	1 1½
A	Dundee ..	Scotland	1 6½	1 2
A	Durham ..	N.E. Coast	1 6½	1 2
A_2	EASTBOURNE	S. Counties	1 5½	1 1½
A_1	Ebbw Vale ..	S. Wales & M.	1 6	1 1½
A	Edinburgh ..	Scotland	1 6½	1 2
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 6	1 1½
A_2	Exeter	S.W. Counties	*1 5½	1 1½
B	Exmouth ..	S.W. Counties	1 4½	1 0½
A_2	FELIXSTOWE	E. Counties	1 5	1 0½
A	Filey	Yorkshire	1 5	1 0½
A	Fleetwood ..	N.W. Counties	1 6½	1 2
B_1	Folkestone ..	S. Counties	1 4	1 0
A	Frodsham ..	N.W. Counties	1 6½	1 2
B_2	Frome	S.W. Counties	1 3½	11½
A	GATESHEAD	N.E. Coast	1 6½	1 2
B	Gillingham ..	S. Counties	1 4½	1 0½
A	Glasgow ..	Scotland	1 7	1 2½
A_2	Gloucester ..	S.W. Counties	1 5½	1 1½
A_2	Goole	Yorkshire	1 5½	1 1½
A_2	Gosport ..	S. Counties	1 5½	1 1½
A_2	Grantham ..	Mid. Counties	1 5	1 0½
A_1	Gravesend ..	S. Counties	1 6	1 1½
A	Greenock ..	Scotland	*1 6½	1 2
A	Grimsby ..	Yorkshire	1 6½	1 2
B	Guildford ..	S. Counties	1 4½	1 0½
A	HALIFAX ..	Yorkshire	1 6½	1 2
A	Hanley ..	Mid. Counties	1 6½	1 2
A	Harrogate ..	Yorkshire	1 6½	1 2
A	Hartlepools ..	N.E. Coast	1 6½	1 2
B	Harwich ..	E. Counties	1 4½	1 0½
B_1	Hastings ..	S. Counties	1 4	1 0
A_2	Hatfield ..	S. Counties	1 5½	1 1½
B	Hereford ..	S.W. Counties	1 4½	1 0½
A_2	Hertford ..	E. Counties	1 5½	1 1½
A	Heysham ..	N.W. Counties	1 6½	1 2
A	Howden ..	N.E. Coast	1 6½	1 2
A	Huddersfield ..	Yorkshire	1 6½	1 2
A	Hull	Yorkshire	1 6½	1 2
A	ILKLEY ..	Yorkshire	1 6½	1 2
A	Immingham ..	Mid. Counties	1 6½	1 2
A_2	Ipswich ..	E. Counties	1 5½	1 1½
B_2	Isle of Wight ..	S. Counties	1 4½	1 0½
A	JARROW ..	N.E. Coast	1 6½	1 2
A	KEIGHLEY ..	Yorkshire	1 6½	1 2
A_2	Kendal ..	N.W. Counties	1 5	1 0½
A_2	Keswick ..	N.W. Counties	1 5	1 0½
A_1	Kettering ..	Mid. Counties	1 6	1 1½
A_2	Kidderminster	Mid. Counties	1 5½	1 1½
B_1	King's Lynn ..	E. Counties	1 4	1 0
A	LANCASTER ..	N.W. Counties	1 6½	1 2
A_1	Leamington ..	Mid. Counties	1 6	1 1½
A	Leeds	Yorkshire	1 6½	1 2
A	Leek	Mid. Counties	1 6½	1 2
A	Leicester ..	Mid. Counties	1 6½	1 2
A	Leigh	N.W. Counties	1 6½	1 2
B	Lewes	S. Counties	1 3	11½
A_2	Lichfield ..	Mid. Counties	1 5½	1 1½
A	Lincoln	Mid. Counties	1 6½	1 2
	Liverpool ..	N.W. Counties	*1 8	1 3
A_2	Llandudno ..	N.W. Counties	1 5½	1 1½
A	Llanelly	S. Wales & M.	1 6½	1 2
	London (12-miles radius)		1 8	1 3
	Do. (12-15 miles radius)		1 7½	1 2½
A	Long Eaton ..	Mid. Counties	1 6½	1 2
A	Loughborough	Mid. Counties	1 6½	1 2
A_1	Luton	E. Counties	1 6	1 1½
A	Lytham ..	N.W. Counties	1 6½	1 2
A_1	MACCLESFIELD	N.W. Counties	1 6	1 1½
A_2	Maidstone ..	S. Counties	1 5	1 0½
A_3	Malvern ..	Mid. Counties	1 5	1 0½
A	Manchester ..	N.W. Counties	1 6½	1 2
A	Mansfield ..	Mid. Counties	1 6½	1 2
B_1	Margate ..	S. Counties	1 4	1 0
A	Matlock ..	Mid. Counties	1 5	1 0½
A_1	Merthyr ..	S. Wales & M.	1 6	1 1½
A	Middlesbrough	N. E. Coast	1 6½	1 2
A_2	Middlewich ..	N.W. Counties	1 5½	1 1½
B_2	Minehead ..	S.W. Counties	1 3½	11½
B_2	Monmouth .. & S. and E. Glamorganshire	S. Wales & M.	1 3½	11½
A	Morecambe ..	N.W. Counties	1 6½	1 2
A_2	NANTWICH ..	N.W. Counties	1 5½	1 1½
A	Neath	S. Wales & M.	1 6½	1 2
A	Nelson ..	N.W. Counties	1 6½	1 2
A	Newcastle ..	N.E. Coast	1 6½	1 2
A	Newport ..	S. Wales & M.	1 6½	1 2
A	Normanton ..	Yorkshire	1 6½	1 2
A	Northampton	Mid. Counties	1 6½	1 2
A	North Staffs ..	Mid. Counties	1 6½	1 2
A	North Shields	N.E. Coast	1 6½	1 2
A_1	Norwich ..	E. Counties	1 6	1 1½
A	Nottingham ..	Mid. Counties	1 6½	1 2
A	Nuneaton ..	Mid. Counties	1 6½	1 2
A	OAKHAM ..	Mid. Counties	1 5	1 0½
A	Oldham ..	N.W. Counties	1 6½	1 2
A_3	Oswestry ..	N.W. Counties	1 5	1 0½
A_1	Oxford ..	S. Counties	1 6	1 1½
A	PAISLEY ..	Scotland	*1 6½	1 2
B_3	Pembroke ..	S. Wales & M.	1 3	11½
A	Perth	Scotland	*1 6½	1 2
A_1	Peterborough	E. Counties	1 6	1 1½
A	Plymouth ..	S.W. Counties	*1 6½	1 2
A	Pontefract ..	Yorkshire	1 6½	1 2
A_1	Pontypridd ..	S. Wales & M.	1 6	1 1½
A_2	Portsmouth ..	S. Counties	1 5½	1 1½
A	Preston ..	N.W. Counties	1 6½	1 2
A	QUEENSFERRY	N.W. Counties	1 6½	1 2
A_2	READING ..	S. Counties	1 5½	1 1½
B	Reigate ..	S. Counties	1 4½	1 0½
A	Retford ..	Mid. Counties	1 5	1 0½
A_1	Rhondda Valley	S. Wales & M.	1 6	1 1½
A	Ripon	Yorkshire	1 5	1 0½
A	Rochdale ..	N.W. Counties	1 6½	1 2
B	Rochester ..	S. Counties	1 4½	1 0½
A_1	Ruabon ..	N.W. Counties	1 6	1 1½
A	Rugby ..	Mid. Counties	1 6½	1 2
A_2	Rugeley ..	Mid. Counties	1 5½	1 1½
A	Runcorn ..	N.W. Counties	1 6½	1 2
A_1	ST. ALBANS ..	E. Counties	1 6	1 1½
A	St. Helens ..	N.W. Counties	1 6½	1 2
B_2	Salisbury ..	S.W. Counties	1 3½	11½
A_1	Scarborough ..	Yorkshire	1 6	1 1½
A	Scunthorpe ..	Mid. Counties	1 6½	1 2
A	Sheffield ..	Yorkshire	1 6½	1 2
A	Shipley ..	Yorkshire	1 6½	1 2
A_2	Shrewsbury ..	Mid. Counties	1 5½	1 1½
A_2	Skipton ..	Yorkshire	1 5½	1 1½
A_2	Slough ..	S. Counties	1 5½	1 1½
A_1	Solihull ..	Mid. Counties	1 6	1 1½
A_2	Southamton ..	S. Counties	1 5½	1 1½
A_1	Southend-on-Sea	E. Counties	1 6	1 1½
A	Southport ..	N.W. Counties	1 6½	1 2
A	S. Shields ..	N.E. Coast	1 6½	1 2
A_1	Stafford ..	Mid. Counties	1 6	1 1½
A	Stirling ..	Scotland	1 7	1 2½
A	Stockport ..	N.W. Counties	1 6½	1 2
A	Stockton-on-Tees	N.E. Coast	1 6½	1 2
A	Stoke-on-Trent	Mid. Counties	1 6½	1 2
B	Stroud	S.W. Counties	1 4½	1 0½
A	Sunderland ..	N.E. Coast	1 6½	1 2
A	Swansea ..	S. Wales & M.	1 6½	1 2
A	Swindon ..	S.W. Counties	1 5	1 0½
A_1	TAMWORTH ..	N.W. Counties	1 6	1 1½
B	Taunton ..	S.W. Counties	1 4½	1 0½
A	Teesside Dist. ..	N.E. Counties	1 6½	1 2
A_2	Teignmouth ..	S.W. Coast	1 5½	1 1½
A	Todmorden ..	Yorkshire	1 6½	1 2
A_1	Torquay	S.W. Counties	1 6	1 1½
B_2	Truro	S.W. Counties	1 3½	11½
A_3	Tunbridge Wells	S. Counties	1 5	1 0½
A	Tunstall ..	Mid. Counties	1 6½	1 2
A	Tyne District	N.E. Coast	1 6½	1 2
A	WAKEFIELD	Yorkshire	1 6½	1 2
A	Walsall ..	Mid. Counties	1 6½	1 2
A	Warrington ..	N.W. Counties	1 6½	1 2
A_1	Warwick ..	Mid. Counties	1 6	1 1½
A_1	Wellingborough	Mid. Counties	1 6	1 1½
A_1	West Bromwich	Mid. Counties	1 6½	1 2
A_2	Weston-s.-Mare	W. Counties	1 5½	1 1½
A	Whitby ..	Yorkshire	1 5½	1 1½
A	Widnes ..	N.W. Counties	1 6½	1 2
A	Wigan ..	N.W. Counties	1 6½	1 2
B	Winchester ..	S. Counties	1 4½	1 0½
A_2	Windsor ..	S. Counties	1 5½	1 0½
A	Wolverhampton	Mid. Counties	1 6½	1 2
A_2	Worcester ..	Mid. Counties	1 5½	1 1½
A_3	Worksop ..	Yorkshire	1 5	1 0½
A_1	Wrexham ..	N.W. Counties	1 6	1 1½
A	Wycombe ..	S. Counties	1 5	1 0½
B	YARMOUTH ..	E. Counties	1 4½	1 0½
B	Yeovil ..	S.W. Counties	1 4½	1 0½
A	York	Yorkshire	1 6½	1 2

* 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	8
Carpenter	,,	1	8
Joiner	,,	1	8
Machinist	,,	1	8
Mason (Banker)	,,	1	8
,, (Fixer)	,,	1	9
Plumber	,,	1	8
Painter	,,	1	7
Paperhanger	,,	1	7
Glazier	,,	1	7
Slater	,,	1	8
Scaffolder	,,	1	4
Timberman	,,	1	4
Navvy	,,	1	3
General Labourer	,,	1	3
Lorryman	,,	1	5½
Crane Driver	,,	1	7
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)	,,	1	19	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	5	0
White Portland Cement, in 1 ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	6
¾" Crushed Ballast	,,		7	0
Building Sand	,,		7	6
Washed Sand	,,		8	6
2" Broken Brick	,,		8	0
¼" ,, ,,	,,		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.
Fletton	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 NILE ELMS:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

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

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	,,	24	10	0
20" × 10" Countesses	,,	19	5	0
18" × 10" Viscountesses	,,	15	10	0
18" × 9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey	per 1,000 (actual)	21	11	6
,, ,, green	,, ,,	24	7	4
Best machine roofing tiles	,,	4	5	0
Best hand-made do.	,,	4	17	6
Hips and valleys	each			9
,, hand-made	,,			9½
Nails, compo	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, ⅝"	Sq.	18	6
,, ¾"	,,	1	1 6
,, 1"	,,	1	2 0
,, 1¼"	,,	1	5 0
,, 1½"	,,	1	10 0
Deal matchings, ⅝"	,,		14 0
,, ¾"	,,		15 6
,, 1"	,,	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"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10		
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9		
,, 3"-11½" long ,,	7	9	1/3	1/8	3/–		
Long screws, 12"-23½" long,,	11	1/3	2/2	2/10	5/3		
,, ,, 3" M-½" long ,,	8	10	1/5	1/11	3/6		
Bends ,,	8	11	1/7½	2/7½	5/2		
Springs not socketed ,,	5	7	1/1½	1/11½	3/11		
Socket unions ,,	2/–	3/–	5/6	6/9	10/–		
Elbows, square ,,	10	1/1	1/6	2/2	4/3		
Tees ,,	1/–	1/3	1/10	2/6	5/1		
Crosses ,,	2/2	2/9	4/1	5/6	10/6		
Plain sockets and nipples ,,	3	4	6	8	1/3		
Diminished sockets ,,	4	6	9	1/–	2/–		
Flanges ,,	9	1/–	1/4	1/9	2/9		
Caps ,,	3½	5	8	1/–	2/–		
Backnuts ,,	2	3	5	6	1/1		
Iron main cocks ,,	1/6	2/3	4/2	5/4	11/6		
,, with brass plugs ,,	—	4/–	7/6	10/–	21/–		

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½
FITTINGS.			
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, ⅜"	,,	10	6
,, ,, ½"	,,	10	3
,, ,, ⅝"	,,	10	0
,, ,, ¾"	,,	9	6
,, ,, ⅞"	,,	9	6
,, ,, 1"	,,	9	6
,, ,, 1¼"	,,	9	6
,, ,, 1½"	,,	9	6

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

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	24	6
,, drawn pipes	,,	24	6
,, soil pipe	,,	30	0
,, scrap	,,	16	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.
Sheet glass, 21 oz., squares n/e 2 ft.	s. 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
⅛" rough cast: rolled plate	,,		5½
⅛" wired cast; wired rolled	,,		9½
⅛" Georgian wired cast	,,		11
⅛" Polished plate, n/e 1 ft.	,, †10 to	‡1	1
,, ,, 2	,, †2 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 ⅛" and ¼"	,, 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	"	50 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 9
½" Vertical dampcourse	"	7 9
½" paving or flat	"	6 3
1" paving or flat	"	7 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2½
Rounded angle	"	2½
Cesspools	Each	5 6

MASON		£ s. d.
Portland stone, including all 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 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
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½ " " "	"	2 3 0
1½" × 2" fir battening for Countess slating	"	9 6
Do., for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
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, ⅜" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	0
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
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

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

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 16 6
Do. in flashings	"	2 2 0
Do. in covering to turrets	"	2 7 6
Do. in soakers	"	1 13 3
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" 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 6
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
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 beds	"	2
Washleather	F.R.	4

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

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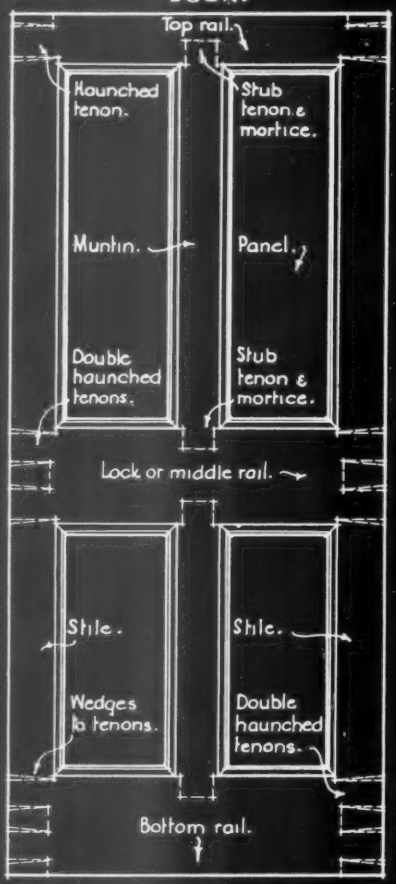
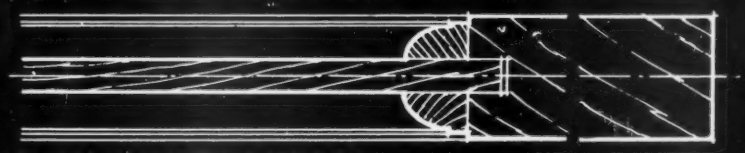
FRAMED, PANELLED & TENONED DOOR:



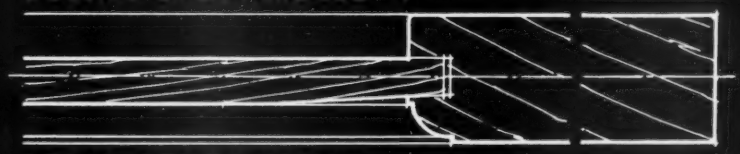
¾" SCALE DETAIL OF DOOR :

ALTERNATIVE METHODS OF PANELLING DOORS :



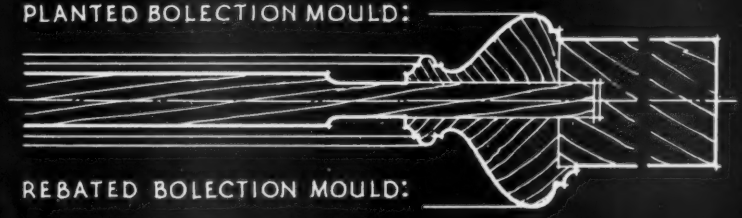
PLAIN PLANTED MOULDS :

SQUARE STUCK MOULD :



SOLID STUCK MOULD :
DOUBLE MOULDED DOORS have solid stuck moulds on each side.

PLANTED BOLECTION MOULD:

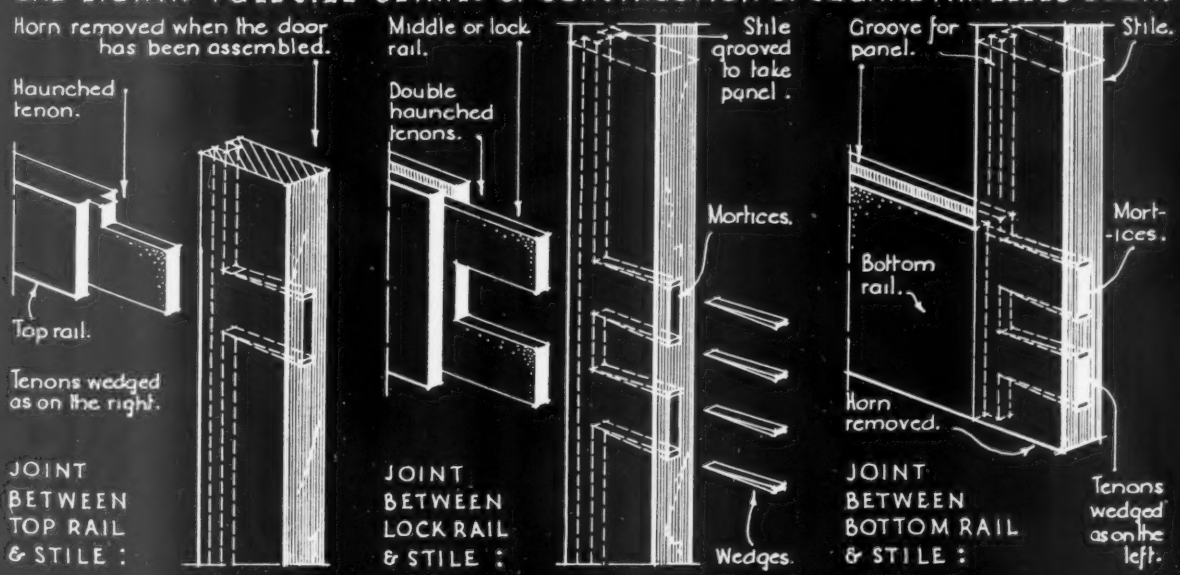


REBATED BOLECTION MOULD:

FLUSH BEADED SOLID PANEL:

½ FULL SIZE DETAILS OF MOULDINGS AND PANELS :

ONE EIGHTH FULL SIZE DETAILS OF CONSTRUCTION OF SQUARE PANELLED DOOR:



Information from The Timber Development Association.

INFORMATION SHEET: TYPES OF DOOR : FRAMED, PANELLED AND TENONED DOORS ·1·
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1· Oscar A. Bayne.

Supplement to THE ARCHITECTS' JOURNAL for February 27, 1936

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 319 •

DOORS

This Sheet sets out typical details and types of panel for panel door construction. Panel doors are made in a variety of arrangements and design, but the general principle of framing the door is common to all arrangements.

Sizes of Members :

No dimensions of wood members have been given, as the size used will depend on a variety of circumstances, such as the size of the door, the quality of the job, and the timber used, etc.

Overall Sizes :

The British Standard sizes of doors are :

Internal Doors.

No.	Nominal thickness.	Width.	Height
1	1¼″	2′ 0″	6′ 0″*
2	1⅜″	2′ 0″	6′ 0″
3	1½″	2′ 0″	6′ 6″
4	1½″	2′ 4″	6′ 6″*
5	1½″	2′ 6″	6′ 6″*
6	1½″	2′ 8″	6′ 6″
7	1¾″	2′ 6″	6′ 6″*
8	1¾″	2′ 8″	6′ 6″
9	1¾″	2′ 10″	6′ 6″
10	2″	2′ 10″	6′ 6″

External Doors.

11	1¾″	2′ 6″	6′ 6″
12	1¾″	2′ 8″	6′ 6″
13	1¾″	2′ 10″	6′ 6″
14	1¾″	3′ 0″	6′ 6″
15	1¾″	2′ 8″	6′ 8″
16	1¾″	2′ 10″	6′ 10″
17	1¾″	3′ 0″	7′ 0″
18	2″	2′ 8″	6′ 6″
19	2″	2′ 10″	6′ 6″
20	2″	3′ 0″	6′ 6″
21	2″	2′ 8″	6′ 8″*
22	2″	2′ 10″	6′ 10″*
23	2″	3′ 0″	7′ 0″*

* The sizes marked with an asterisk are those most usually held in stock in the standard designs of the various manufacturers.

British Standard Specification :

For full details see British Standard Specification for doors, No. 459—1932.

Information from : The Timber Development Association, Limited

Address : 69 Cannon Street, E.C.4

Telephone : City 2714

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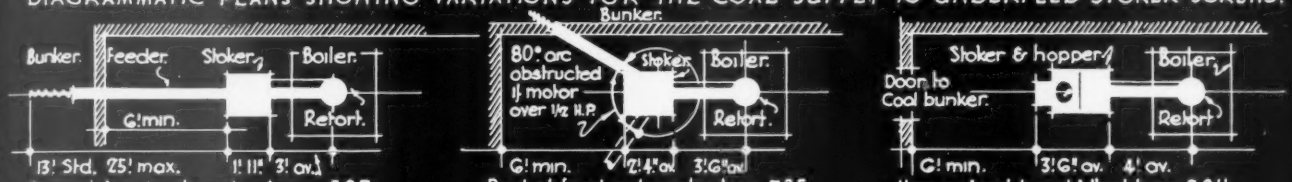
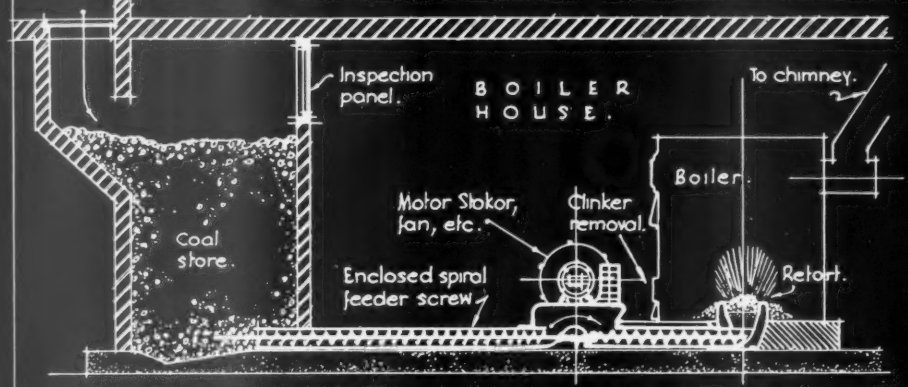
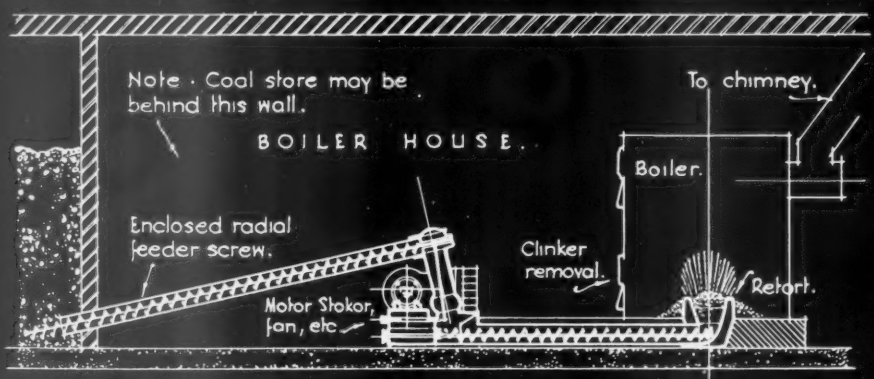
DIAGRAMMATIC PLANS SHOWING VARIATIONS FOR THE COAL SUPPLY TO UNDERFEED STOKER SCREWS.



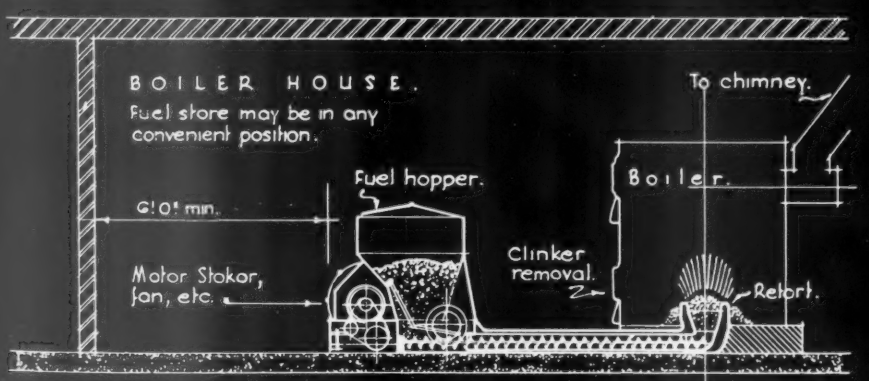
DIAGRAMMATIC SECTIONS SHOWING GENERAL ARRANGEMENT OF STOKER TYPES :



1. DIRECT FEED FULLY AUTOMATIC STOKER : TYPE 5BF.
Conveys coal from store immediately behind stoker & delivers it to boiler without handling.



2. RADIAL FEED FULLY AUTOMATIC STOKER : TYPE 7BF.
Conveys coal from coal store to boiler provided coal store is somewhere adjacent.



3. HOPPER TYPE STOKER FOR HANDFILLING : TYPE 3BH.
Apparatus for filling these hoppers automatically can be supplied when required.

GENERAL DESCRIPTION ·

These types of stokers are designed to burn a cheap coal under thermostatic control in accordance with the correct principles of combustion.

As the coal is slowly pushed upwards through the fire bed it is heated and the volatile gases given off are burned as they pass through the fire. There is no waste of fuel and very little ash.

The correct amount of air is supplied by a fan incorporated in the stoker.

1. THE DIRECT FEED MODEL, type 5BF, is made in six sizes up to a maximum of 1,000,000 B.T.U.'s per hour capacity.

2. RADIAL FEED MODEL, type 7BF, is made in six sizes up to a maximum of 1,000,000 B.T.U.'s per hour capacity. The feeder tube is pivoted to connect to the fuel store, situated anywhere within its radius.

NOTE : The two stokers illustrated and described above convey coal by feeder screw direct from coal store to boiler without handling. There are no hoppers to fill, and the installation will continue to supply heat thermostatically controlled as long as there is coal available.

3. HOPPER MODEL, type 3BH.

These models are usually filled by hand, but automatic feeding apparatus can be supplied when required.

The hopper type stokers can be provided to cover a wide range of capacities up to 1,600,000 B.T.U.'s. per hour.

All motors are totally enclosed, and proof against damage, dust, ashes and moisture.

Information from Hope's Heating & Lighting Ltd.

INFORMATION SHEET · AUTOMATIC STOKERS FOR CHEAP COAL

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

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 320 •

AUTOMATIC STOKERS

Subject : Automatic Firing of Heating and Hot Water Supply Boilers with Cheap Coal

General :

The stokers shown on the front of this Sheet are designed to burn a cheap grade of small industrial coal efficiently and economically.

They require little attention beyond keeping a supply of coal and removing ash or clinker occasionally.

Controls :

Special automatic controls can be fitted so that one boiler and stoker installation can supply central heating and domestic hot water during the winter months and domestic hot water only, during the summer, in whatever quantities are required, at the minimum of cost.

Ratings :

The ratings of the fully automatic stoker types 5BF and 7BF are from 10 lb. per hour to 120 lb. coal, i e., up to 1,000,000 B.T.U.'s per hour capacity. The hopper type 3BH is made in ratings up to 1,600,000 B.T.U.'s capacity.

Sizes :

The tables below set out the principal dimensions of the three types of Motor Stokers.

Replacements, etc. :

In addition to the overall lengths given, all types of stoker require about 6 ft. extra space for the withdrawal of conveyor screws for inspection or replacement.

Cost :

The cost of the stokers varies from £90 to £450, depending upon the capacity of the boiler.

Manufacturers :	Hope's Heating & Lighting, Ltd.
Address :	Halford Works, Smethwick, Birmingham
Telephone :	Smethwick 0891
London Office :	59 Berners Street, W.1
Telephone :	Museum 8416
Leeds Office :	15 East Parade
Telephone :	24191

Table of Sizes.

OVERALL LENGTH. (Back of stoker to centre line of retort.)	CLEARANCE (Front of stoker to centre line of retort.)	LENGTH OF FEEDER SCREW		HEIGHT OF RETORT	WIDTH OF STOKER	HEIGHT Including Hopper if fitted
Type 5 BF 51½″ ± 12″ to 53″ ± 12″	28½″ ± 12″ to 30″ ± 12″	Stand. 13′ 0″	Max. 25′ 0″	12″ to 14½″	26″	
Type 7 BF 66½″ ± 12″ to 69″ ± 12″	40½″ ± 12″ for all sizes.	13′ 0″	25′ 0″	12″ to 14½″	26″	33½″
Type 3 BH 84″ ± 12″ to 108″	43½″ ± 12″ to 67½″	None		12″ to 14½″	31″	32″ to 42″

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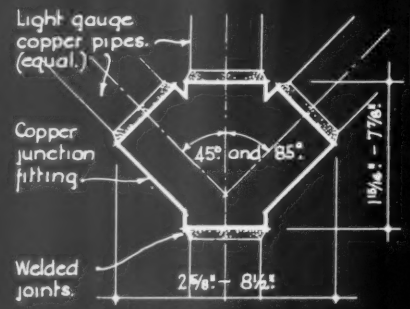
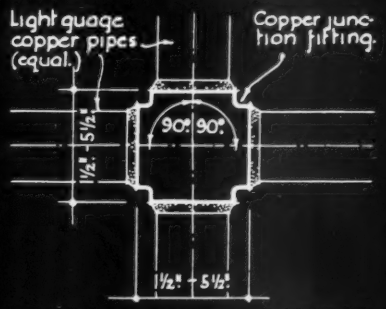
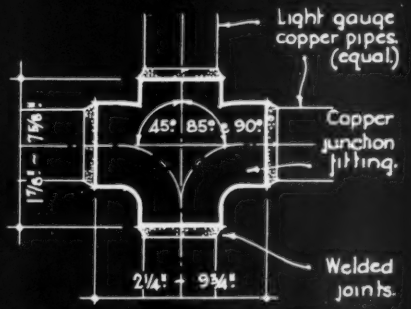
WHARFEDALE WELDABLE WATER SUPPLY FITTINGS FOR PIPES OF ½" TO 4" DIAMETER :



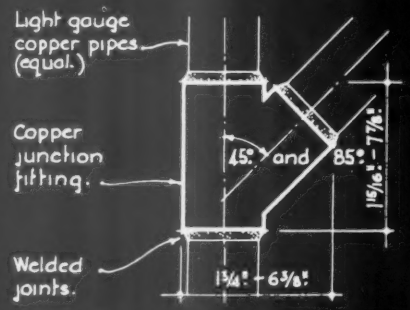
DOUBLE JUNCTION PIECE : for pipes of internal diameter ½" to 4"



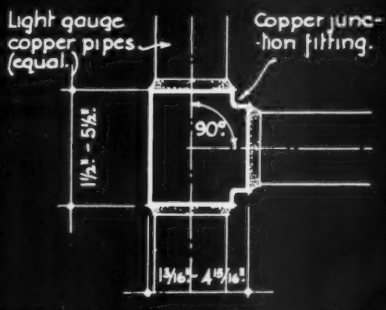
FOUR-WAY JUNCTION PIECE : for pipes of internal diameter ½" to 4"



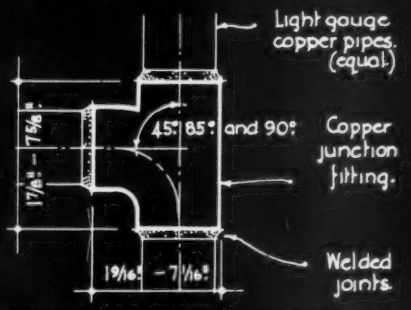
DOUBLE BRANCH JUNCTION : for pipes of internal diameter ½" to 4"



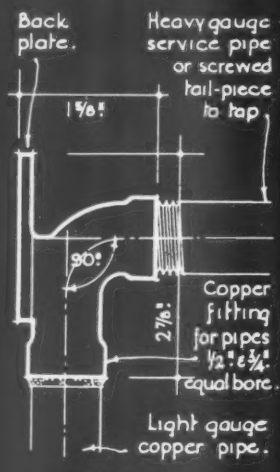
SINGLE JUNCTION PIECE : for pipes of internal diameter ½" to 4"



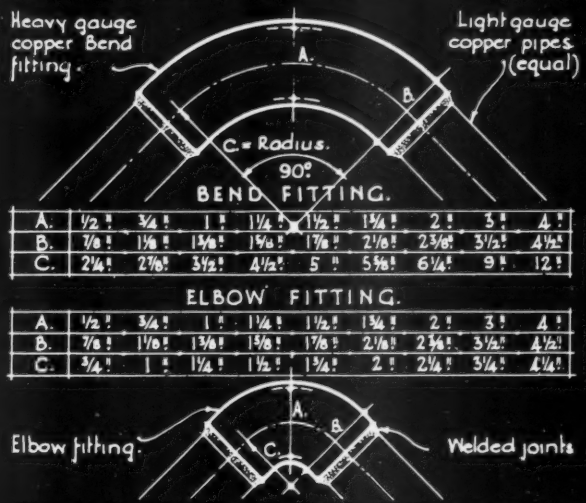
TEE JUNCTION PIECE : for pipes of internal diameter ½" to 4"



SINGLE BRANCH JUNCTION : for pipes of internal diameter ½" to 4"



ELBOW TAP CONNECTION WITH BACK PLATE :



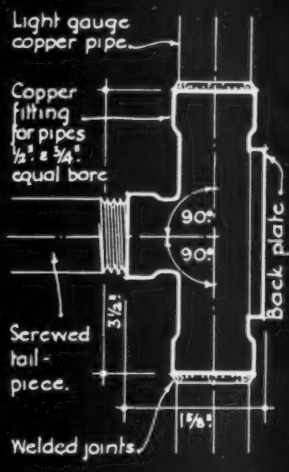
BEND FITTING.

A.	½"	¾"	1"	1¼"	1½"	1¾"	2"	3"	4"
B.	7/8"	1⅛"	1⅜"	1⅝"	1⅞"	2⅛"	2⅜"	3½"	4½"
C.	2¼"	2⅞"	3½"	4½"	5"	5⅝"	6¼"	9"	12"

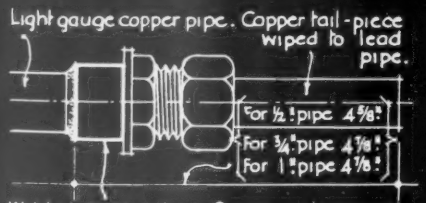
ELBOW FITTING.

A.	½"	¾"	1"	1¼"	1½"	1¾"	2"	3"	4"
B.	7/8"	1⅛"	1⅜"	1⅝"	1⅞"	2⅛"	2⅜"	3½"	4½"
C.	¾"	1"	1¼"	1½"	1¾"	2"	2¼"	3¼"	4¼"

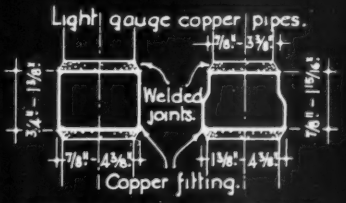
WELDABLE COPPER BENDS FOR PIPES ½"-4" DIAM.



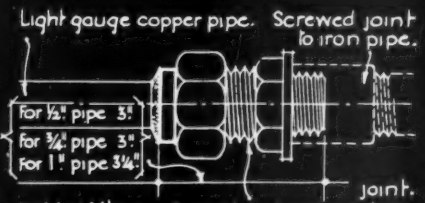
TEE TAP CONNECTION WITH BACK PLATE :



COPPER TO LEAD UNION. (½" ¾" & 1" equal bores.)



SOCKET PIECE FITTING & DIMINISHING SOCKET (For pipes ½" to 4" each outlet)



COPPER TO IRON UNION : (½" ¾" & 1" equal bores.)

Information from W. L. Kilburn, R.P. *Issued by British Oxygen Co. Ltd.*

INFORMATION SHEET : WELDABLE COPPER FITTINGS FOR WATER SUPPLY SERVICES
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

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INFORMATION SHEET

• 321 •

PLUMBING IN WELDED COPPER

Weldable Fittings :

This Sheet is the seventh of the series dealing with plumbing in welded copper and sets out the range of weldable copper fittings for water supply services of light gauge copper piping. The general application of these fittings has been dealt with in previous Sheets Nos. 259 and 268.

Material of Fittings :

The fittings are made of the same grade of copper as is recommended for the pipe, i.e., deoxidised copper. The system is therefore an all-copper installation, in which jointing on the site is simplified and perfectly flush interior surfaces are automatically obtained.

Sizes of Fittings :

The dimensions given on the diagrams are for the minimum and maximum sizes of fittings manufactured, i e., for ½ in. to 4 in. bore junctions, bends and sockets, ½ in. to ¾ in. tap connections and ½ in. to 1 in. unions.

The tables set out the overall sizes of the complete range of fittings for each bore manufactured.

Previous Sheets :

Previous Sheets of this series are Nos. 225, 234, 243, 251, 259 and 268.

The first Sheet gave a summary of the various methods of jointing light gauge copper pipes ; the second and third Sheets were devoted to the details of welding by the bronze weld method, the fourth to the copper weld method, and the fifth and sixth set out the general application of the fittings detailed overleaf.

Issued by: The British Oxygen Co., Ltd.
Address: Victoria Station House, S.W.1
Telephone : Victoria 9225

Single Junction Piece.

Bore	Length	Width (overall)
½"	1 15/16"	1 3/8"
¾"	2 1/4"	2 1/8"
1"	2 11/16"	2 9/16"
1¼"	3 5/16"	3 1/8"
1½"	3 11/16"	3 5/8"
1¾"	4 1/32"	4"
2"	4 3/8"	4 3/8"
3"	6 1/32"	6 3/16"
4"	7 7/8"	6 3/8"

Double Junction Piece.

Bore	Length	Width
½"	1 15/16"	2 3/8"
¾"	2 1/4"	3 1/8"
1"	2 11/16"	3 5/8"
1¼"	3 5/16"	4 5/8"
1½"	3 11/16"	5 1/8"
1¾"	4 1/32"	5 7/8"
2"	4 3/8"	6 7/16"
3"	6 1/32"	9"
4"	7 7/8"	8 1/2"

Tee Junction Piece.

Bore	Length	Width (overall)
½"	1 1/2"	1 3/16"
¾"	1 3/4"	1 7/16"
1"	2"	1 11/16"
1¼"	2 1/4"	1 15/16"
1½"	2 3/4"	2 5/16"
1¾"	3"	2 9/16"
2"	3 1/4"	2 13/16"
3"	4 1/2"	3 15/16"
4"	5 1/2"	4 15/16"

Four-way Junction Piece.

Bore	Length	Width
½"	1 1/2"	1 1/2"
¾"	1 3/4"	1 3/4"
1"	2"	2"
1¼"	2 1/4"	2 1/4"
1½"	2 3/4"	1 3/4"
1¾"	3"	3"
2"	3 1/4"	3 1/4"
3"	4 1/2"	4 1/2"
4"	5 1/2"	5 1/2"

Single Branch Junction

Bore	Length	Width (overall)
½"	1 7/8"	1 9/16"
¾"	2 1/4"	1 13/16"
1"	2 5/8"	2 5/16"
1¼"	3 1/4"	2 13/16"
1½"	3 5/8"	3 5/16"
1¾"	4"	3 9/16"
2"	4 3/8"	3 15/16"
3"	6 3/16"	5 9/16"
4"	7 5/8"	7 1/16"

Double Branch Junction

Bore	Length	Width
½"	1 7/8"	2 1/4"
¾"	2 1/4"	1 3/4"
1"	2 5/8"	3 1/4"
1¼"	3 1/4"	4"
1½"	3 5/8"	4 1/2"
1¾"	4"	5"
2"	4 3/8"	5 1/2"
3"	6 3/16"	7 3/4"
4"	7 5/8"	9 3/4"

Collars.

Bore	Length	Overall Diameter
½"	¾"	⅞"
¾"	¾"	1 1/8"
1"	¾"	1 3/8"
1¼"	1"	1 5/8"
1½"	1"	1 7/8"
1¾"	1"	2 1/8"
2"	1 1/16"	2 3/8"
3"	1 3/8"	3 3/8"
4"	1 3/8"	4 3/8"

Diminishing Sockets.

Bore	Length
½"-¼"	⅞"
¾"-½"	1"
1"-1¼"	1 1/16"
1"-2"	1 7/16"
1¼"-2"	1 3/8"
2"-3"	1 15/16"
3"-4"	1 15/16"

Bend Fittings.

Bore	Radius
½"	2½"
¾"	2⅞"
1"	3½"
1¼"	4½"
1½"	5"
1¾"	5½"
2"	6½"
3"	9"
4"	12"

Elbow Fittings.

Bore	Radius
½"	¾"
¾"	1"
1"	1¼"
1¼"	1½"
1½"	1¾"
1¾"	2"
2"	2½"
3"	3½"
4"	4½"

Tap Connections (Elbows).

Bore	Length	Width
½"	2⅞"	1⅝"
¾"	2⅞"	1⅝"

Tap Connections (Tees).

Bore	Length	Width
½"	3½"	1⅝"
¾"	3½"	1⅝"

Unions (Copper to lead).

Bore	Length
½"	4⅝"
¾"	4⅞"
1"	4⅞"

Unions (Copper to Iron).

Bore	Length
½"	3"
¾"	3"
1"	3½"