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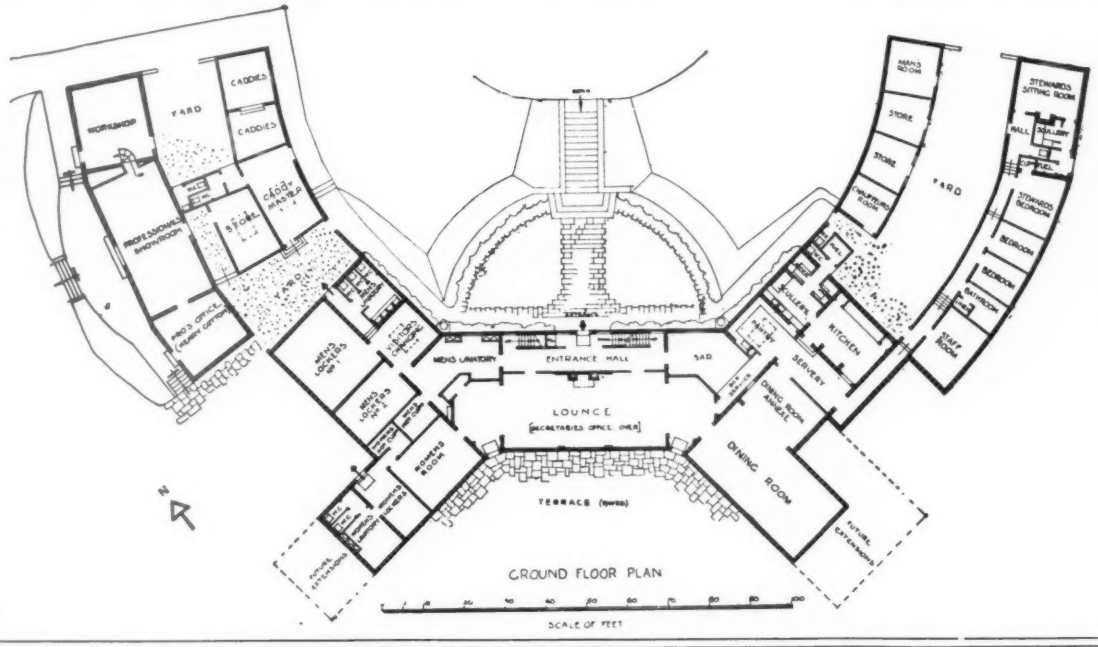

The Golf Club House at Ashridge, Hertfordshire.

THE ARCHITECTS' JOURNAL

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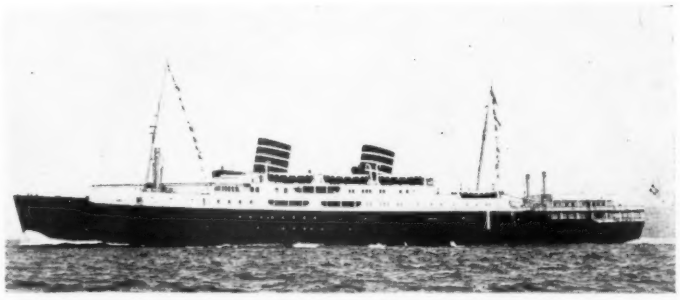
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, JUNE 16, 1938 NUMBER 2265 : VOLUME 87

PRINCIPAL CONTENTS

THE NEW MOTOR-VESSEL "VEGA"

ARCHITECT, GUSTAVO PULITZER FINALI: CONSULTING ARCHITECT, A. DARRE-KAARBO



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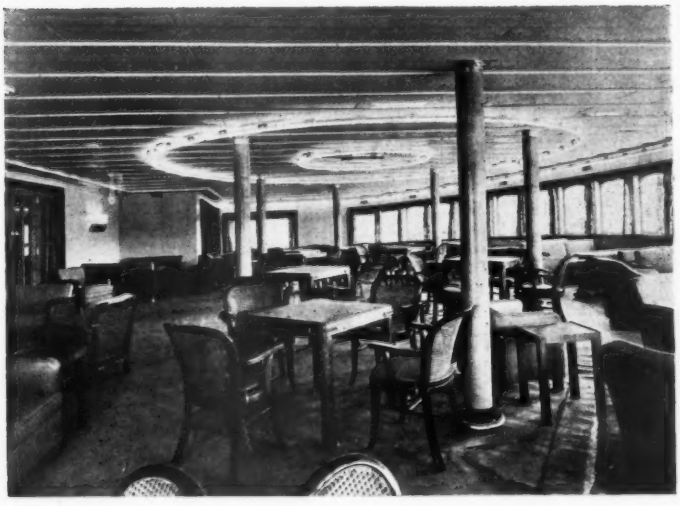

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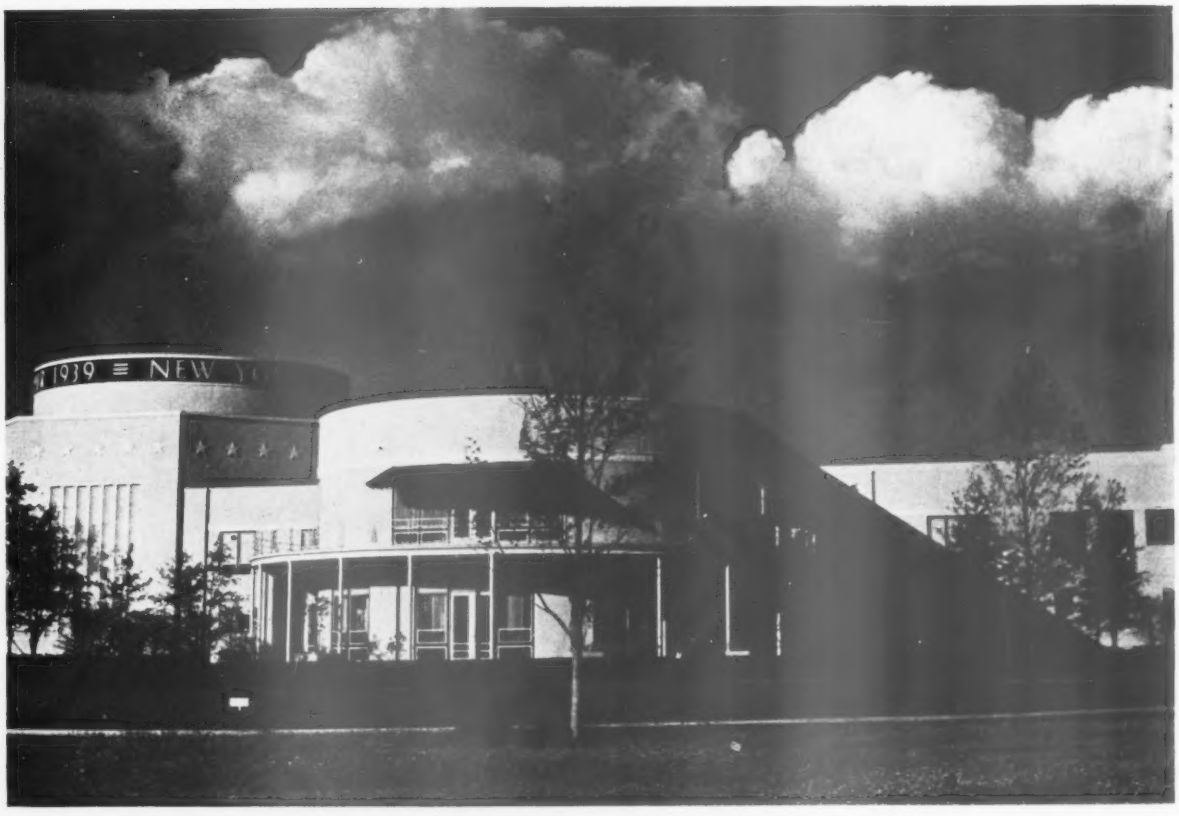
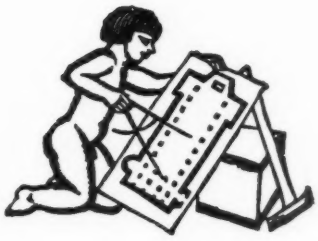
The Bergenske Steamship Company's new motor-vessel "Vega" was built at Trieste for the Newcastle-on-Tyne—Stavanger—Bergen service and made her first voyage in the service on June 4. The displacement of the "Vega" is 7,860 tons, and the dimensions are: length overall, 445 ft.; length b.p., 415 ft.; breadth, 50 ft. The height between decks is 9 ft. There are six decks and accommodation is provided for 465 persons—217 first class and 248 second class. The photographs show: 1, a general view; 2, the entrance hall as seen from the observation lounge. It is executed in light woods with two walls completely covered with panels executed in different woods. These panels display many places of interest for touring in Norway; 3, the observation lounge, showing the long row of windows overlooking the sea. This room has a soft, greenish atmosphere, obtained by the colours of the fabrics; 4, the first-class dining room, which provides seating accommodation for 220 persons. The lower part of the room is of light ash, and Roman travertine stone has largely been used for the forward and after walls. The central dome is outlined by rows of indirect light. The chairs are covered with red leather; 5, staircase landing in the second class.



NEW YORK WORLD FAIR

Two views of the administration building at the New York World Fair. This building is the first to be completed.

A Conference on the co-operation of architects in Air Raid Precautions has taken place during the past three days. For this reason the series of articles on territorial planning has been interrupted and will be continued next week.



A.R.P.

ON Monday the co-operation of architects in Air Raid Precautions was invited by the Home Secretary, and on the next two days a number of architects attended a course of lectures by the two men most expert in A.R.P. as it affects the profession.

Mr. Bird and Mr. Scott dealt with the general problems, both of damage and dislocation of civil life, that may be expected to occur when large cities are subjected to aerial bombardment. But the main purpose of their lectures was to describe the reasonable precautions which can now be incorporated in buildings and to ask architects to see that as many as possible are so incorporated.

These recommendations form the immediate contribution of architects to A.R.P. But they should not look upon them as the end of A.R.P. as far as they are concerned. An even more valuable form of co-operation would be for them to decide what they would do and how they would do it if hostile bombing actually took place.

There is good reason for stressing this second part. Passive Defence involves structural precautions. It also involves evacuation, problems of protecting services, food supplies, hospitals and the rest. In these problems civil and public service engineers would be as much concerned as architects, or more so—with this difference. The ordinary work of civil and public service engineers will continue in war-time and be intensified ; the ordinary work of architects, twelve or fourteen thousand of them, would come to a full stop.

The production of a skeleton plan by which the services of architects could be used in the ways they would be most efficient is therefore the most important factor of the profession's co-operation in A.R.P.

For the moment it is help in a smaller degree which is asked for. Before helping in any way it is necessary for architects to understand thoroughly the damage likely to be caused by bombing. Information on this subject will no doubt be made available to architects, but in this and the following issue the JOURNAL supplements it by two articles by Mr. F. Skinner concerning the effects of recent raids in Catalonia, and especially in Barcelona.

Mr. Skinner's deductions after a visit of a week cannot claim to be authoritative. But the views of an architect with some previous knowledge of the subject after inspecting a great number of buildings damaged by bombs are at least of the greatest interest to other architects ; and these conclusions are given in some detail. In addition, the activities of the Committee of Passive Defence will be fully described next week, together with drawings of the types of shelter now being constructed.

From these articles it appears that the destructive capacity of bombs appears to fall into the following order : high explosive, with delayed action ; high explosive, exploding on impact ; incendiary bombs. But it must be remembered that the high proportion of modern buildings in Barcelona has made the incendiary bomb much less of a danger than it might be elsewhere. Gas bombs have not yet been used in Spain.

It is difficult to say of bombings in which some thousands have been killed that their results are even to a small degree reassuring. In this instance, however, it is the effects of bombs on structure which are under review, and from this aspect the effects of individual bombs in Barcelona can be stated to be less than the inexpert might have expected. High explosive bombs up to half-ton weight appear usually to explode at the third floor down, and the collapse of the building and sometimes of its immediate neighbours is caused more by the weight of the upper floors in falling than by the explosive powers of the bomb. Thus, so far as the bombs used against Barcelona are concerned, the collapse of three buildings is the greatest structural damage normally caused by the largest bomb.

The bombs which explode on impact do not normally cause much structural damage or penetrate to road services. Their splinters, however, fly at every angle of the hemisphere above the point of impact and can cause casualties at large distances.

The lessons of these two types seem obvious. Shelters in the basements of buildings constructed so that they can beyond question resist the weight of the entire superstructure, appear likely to be very efficient in the case of taller buildings. In the case of suburban housing shelters or trenches would be necessary.

For the efficiency of precautions against gas, Barcelona provides no test; but at the beginning of the co-operation for which the Home Secretary asked, architects can agree with him in one thing : The effect of impact bombs in Catalonia leaves no doubt that the worst place to be in an air raid is in the street.

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NOTES & TOPICS

A.R.P.

ON Monday evening Sir Samuel Hoare faced a hall crowded with architects waiting to be invited to help in A.R.P. Some of them we like to think were intelligent people; and most were reasonable enough not to expect Cabinet Ministers to produce first-class speeches everywhere.

*

And yet . . . well, for me, the Home Secretary's manner and matter verged upon the infelicitous. From Sir Samuel we, or perhaps the Press, obtained some reminders of architects' past achievements in the art of fortification, a sigh that we were back in the 15th century, and a pat on the top of the head—the whole with an obviousness of phrasing appropriate to prize marrows.

*

Mr. T. E. Scott was less fatuous. A sentence of dry regret covered the wider context of A.R.P.; the rest was lucid, factual, reasonable and convincing.

*

The picture which Mr. Scott and Mr. Eric Bird presented of structural A.R.P. was that of recommendations based on a few facts and many speculations—a situation which might be much improved if a reasonable amount of research were carried out by the Government. (One seemed to see here, perhaps wrongly, a reference to the bombing of various types of building carried out in Germany.)

*

It appears that the framed building with a shelter in the basement capable of withstanding the fall of the superstructure is the best type of bomb-resisting structure in central areas; that normal suburban housing offers a poor target, and therefore no precautions are needed save a strengthened room or trench; and that congested housing or tenements in cities will require special measures—either in the way of shelters or by evacuation.

*

Mr. Stanley Hall, in thanking Sir Samuel, claimed our sympathy for him by describing his retirement, after a delicate little occurrence when he was Foreign Secretary, into the peacefulness of the Home Office, where he was devoting himself to those twin expressions of twentieth-century civilization—Prison Reform and A.R.P.

*

Mr. Herbert Ryle, Chief Surveyor to H.M.O.W., doubted whether he could tell the meeting, as Sir Samuel had suggested, what H.M.O.W. were doing, without consulting his Minister. But he had no objection to telling us what Sir Samuel had told the House of Commons last week. And did so.

*

Then Mr. F. T. Bush, deputy architect at Scotland Yard, rose up, and the evening's careful calm was shattered.

*

With deeply impressive sincerity Mr. Bush asked architects to have nothing to do with the nonsense of A.R.P., to remember that their art was international and to refrain from associating themselves with the hypocrisy of Sir Thomas Inskip, who could hint at the devilish appliances which our scientists had up their sleeves whilst remaining president of a Christian union.

*

After Mr. Bush's catalogue of larger truths, the Home Secretary's reminder that, at this precise moment, A.R.P. were the least provocative of discouragements to an aggressor, seemed coldish comfort.

DUX

The time is near for sending in applications for the post of A.A. leader. People seem to have been puzzled when I said, three weeks ago, that it was obvious who the next principal should be. Well now, think of all the obviously necessary qualifications.

*

First, a man of true Aryan stock—preferably English. And when I say English I mean *English*. Second, a man architecturally on the level; no psycho-analytical socio-technics, just the straight stuff. Third, a man virile enough to keep a firm hand with youth, yet sufficiently advanced in years to remember the golden days of the Beaux Arts. And fourth, of course, a man who puts monetary considerations last. Now don't tell me I haven't made myself clear.

PLANNING AND "THE TIMES"

The T.P.I. report on National Planning has produced several lively columns in *The Times*. First, a leading article complimenting the report and raising the national question of the excessive size of towns. Second, a strikingly revolutionary article "from a Correspondent" in which the garden city school of planning and the school which advocates "flats in crystal cruciform towers . . . rising out of green spaces," are alike condemned, while the MARS

school (though the name MARS is scrupulously avoided), advocating controlled ribbon development, is handed a bouquet.

*

Third, in condemnation of these sentiments, came a two-column letter from fiery, garden city protagonist F. J. Osborn, declaiming that "the last thing any considerable school of planning want is any form of ribbon development," and reversing the unknown Correspondent's suggestion that present statutory planning has a garden city bias.

*

But it was encouraging to find that the authors of all these columns were at least agreed on one very major point: the problem, in the words of the unknown Correspondent, is not how to reorganize the town, but how to re-utilize the land.

PLANNING AND THE YOUNG

The Orange Hill Central School at Edgware is "run on modern lines." Particularly the geography department, in which lessons are "realistic and devoid of text-book mustiness." So ran the story in the *Star* last week when it explained how the boys were using its South Bank Development Scheme as a text book in a realistic course on re-planning Greater London. The course is given by geography master Mr. K. K. Savage, who told the *Star* reporter: "I shall take the 110 boys and ask them to note the intensive development of the north Thames frontage, and they will see the contrast on the other side." They are to do their noting as they sail up the river. Bravo, Mr. Savage.

T.P.I. MEMBERSHIP

Is the architectural profession, by the way, losing interest in town planning or is the town-planning profession losing interest in architects? The Town Planning Institute's list of membership shows, according to an analysis which I have just had done, that there are 206 *full* members of the T.P.I., of which 76 (37 per cent.) are also members of the R.I.B.A.; and there are 391 *associates*, of which 102 (only 26 per cent.) are also members of the R.I.B.A. In other words, the new generation of architect town-planners is being outnumbered by legal, engineering and surveying members. This looks to me like some kind of a decline.

SUBURBS . . .

I think it was Mr. Williams-Ellis who said that Bournemouth has spread like an ungainly trollop. The rot has now spread well to the east of Christchurch and continues *via* the appalling traffic chaos in the centre of the town right out to Poole and Sandbanks on the west, while the spread has gone so far inland that it's hardly worth trying to go round the edge.

*

Sandbanks, instead of being the rather pleasant isolated spot it was before the war, might now be almost any London suburb.

. . . AND THEIR NEUROSES

Last week a coroner had a lot to say about "suburb neurosis" and the unfortunate young wives who slowly go mad with nothing to do all the afternoon. He didn't mention that watching the cars go by (and the accidents) is quite a popular diversion. Laing's, I believe, can always sell a house on a main road, while the cul-de-sac ones hang fire. Yet all the time we architects preach quiet side roads, no ribbon development and living-rooms facing south. It has been pointed out to me again this week by a builder that most of the people who buy his houses do *not* want the kitchen on the street and the parlour with a South aspect. They want the parlour on the street irrespective of aspect so that in their idle hours they can watch Life go by. And they want the kitchen on the garden, again irrespective of aspect, so that they cannot be seen washing up from the street.

THE ABINGDON FRACAS

Ever since the details of the King George V memorial in Abingdon Street were first made known, public criticism of the scheme has been growing. As already noted in this column, the disapproval of the Royal Fine Art Commission has been ignored by the Memorial Committee. This once again draws attention to the pathetic state of this body, which has to wait to be asked for advice, may not publish its recommendations, and cannot enforce its decisions.

*

Various alternative schemes have been put forward, of which Sir William Davison's "Parliament Square" plan is undoubtedly the most logical and is widely supported.

*

The latest development in this melancholy and familiar story is that the Georgian Group have rented an office in Abingdon Street itself, from which to organize its campaign of opposition, and have arranged for a parade of sandwich-men to persuade the public to sign the petition of protest.

*

More encouraging still is the news that the Amenities Group of the House of Commons and House of Lords have passed a resolution (with only two dissentients) strongly opposing the scheme.

*

The forthcoming debate on the matter, therefore, is likely to show sharp conflict of opinion, and its outcome is of vital importance to all those who are interested in London as opposed to Buenos Aires.

*

Public resentment in these matters is slow to show itself. Sometimes it is too late, as in the case of the Adelphi. Sometimes, as in the case of Carlton House Terrace, it is just in time.

LADY BOILEAU-VER

"Anyone who has an eye in their head which does not squint," writes Lady Boileau to the Norwich Society, "can see that everything which is wrong is to be found in the curious erection which now dominates the Old Market Place." Another criticism by the same lady of the new city hall was that it was "Norwich's memorial to extravagance and mediocrity." *Atta* Boileau!

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

THE ARCHITECTS' DIARY

Thursday, June 16

ROYAL ACADEMY SUMMER EXHIBITION. *Burlington House.*

Saturday, June 18

BUILDING SURVEYORS' ASSOCIATION. *At the Civic Court, Town Hall, Leeds. Seventeenth annual general meeting.* 2.30 *p.m.*

LONDON SOCIETY. *Visit to the Royal Opera House, Covent Garden.* 2.30 *p.m.*

ARTS AND CRAFTS EXHIBITION SOCIETY. *6 Queen Square, W.C.1. Annual General Meeting.* 3.30 *p.m.*

Monday, June 20

INSTITUTION OF HEATING AND VENTILATING ENGINEERS. *Summer meeting. At Bournemouth. Until June 22.*

Wednesday, June 22

R.I.B.A. CONFERENCE. *At Bristol. Until June 25. The programme is printed on page* 1041.

A.R.P.

The three-day conference on Structural Air-Raid Precautions at the R.I.B.A. ended yesterday. The conference was the first of a series arranged by the R.I.B.A., at the request of the Air Raid Precautions Department; other conferences are to be held in the Provinces at a later date. Below are extracts from the speech made by Sir Samuel Hoare, the Home Secretary, at the inaugural meeting, and points from the papers read by Mr. Thomas Scott ("Air Raid Precautions as a Problem for the Architect") and Mr. Eric L. Bird ("Some General Principles of Structural A.R.P."). A full report of the proceedings will be published next week.

Sir Samuel Hoare said there were few fields in which architects had shown their genius more conspicuously than in that of defence. It was a sad commentary on the history of the world that now for the first time in England since the fifteenth century we were beginning to think once more of the fortification of private houses. They had to take steps which would help them to avoid panic on the one hand and unnecessary loss of life on the other.

During the next fortnight it was hoped to issue a detailed handbook on structural precautions which should assist architects and the general public in dealing with both new buildings and the more difficult problem of adapting existing ones. In a day or two that handbook would be supplemented by another dealing with the structural protection of hospitals. Police headquarters had already been dealt with. In the near future it was hoped to cover the whole of the field and enable every part of the country to know the kind of precautions that should and could reasonably be taken without prohibitive expenditure. Without the architects' help it would have been impossible to deal successfully or adequately with the many difficulties of the problem.

THOMAS SCOTT: I hesitate to criticise the efforts of harassed Government departments, but I owe it to my colleagues on the Structural Precautions Committee and to a profession which directs building work to the value of two hundred million pounds every year to state my conviction that this research has not yet been given the full attention it deserves. I do not anticipate that research will enable us to devise some dramatic or easy means of resisting the destructive effects of high-explosive bombs; in point of fact, it is my opinion that the best results are to be achieved by wise planning rather than by scientific calculation; but I am convinced that if an adequate amount of properly considered research were undertaken it would be possible to speak with certainty on some details of structural precautions, which are now founded upon probability.

We have, however, reached conclusion on many important principles capable of being applied to the design of most classes of buildings: I hope these words will reach the ears of all responsible authorities, and that they will be compelled by public opinion to realize that every building erected without due regard to structural precautions against air attack represents a wasted opportunity and in many cases a downright neglect of public duty.

One of the most serious consequences of the bombardment of buildings is that of demolition: reports from Spain indicate that a very considerable proportion of casualties has been caused by the collapse of the upper parts of buildings upon people sheltering in basements; here, at any rate, we have one understandable problem of structural precautions, and it needs no great ingenuity or skill to plan and construct shelter accommodation within buildings which would at least afford protection against the effects of demolition.

You will, perhaps, have observed that the structural precautions against the various effects of high-explosive bombs are of a somewhat contradictory nature. Thick walls are necessary to afford protection for personnel against splinters and blast, but in order to minimise the destructive effect of blast pressure upon buildings it is considered desirable that they should be constructed as framed structures, with thin walls which would yield to blast pressure without transmitting damaging stresses to the structural framework. Add to these varying requirements the uncertainty as to the size of the bombs, their angle of arrival and force of impact and visualise the many possible points of impact of a bomb, and you have some idea of the complexity of the problem.

Much has been said and written about shelters which are claimed to be capable of resisting the direct effects of a 500-lb. high-explosive bomb, but in my opinion there is not sufficient technical evidence available to justify the concentration of large numbers of people in any single shelter presumed to provide this degree of protection; and, further, the thicknesses of concrete necessary to afford this degree of protection are so great as to be impracticable in terms of general building. The sense of security afforded by an apparently impregnable shelter is no doubt of considerable psychological value, but a direct hit from a bomb might cause casualties of disastrous proportions, followed ultimately by panic and a complete mistrust of other such shelters.

Moreover, it does not necessarily follow that every building hit by a large bomb will immediately collapse: reports from Shanghai indicate that in at least two cases large buildings have been struck by 500-lb. bombs with little material damage to the buildings and very few casualties among those occupying the buildings.

We, as architects, would not consent to deform our buildings in the anticipation of a war which might never come; but with good design as the first objective, we may still incorporate structural precautions of a satisfactory nature which would not inconvenience the occupants of buildings during peace-time, but might be of tremendous value in time of war.

ERIC L. BIRD: The modern English town, considered as a whole, is a poorer target than many continental towns, closely built up with blocks of flats. Our habit of spreading towns in low buildings with a large proportion of open space makes them a thin target.

The tall city building represents a far more important problem than the small house; it is also one with which architects are customarily more concerned. The provision in each new house of one room that will afford better shelter than the others, and that can be easily given additional protection, is a sensible precaution.

Full protection of personnel in shelters can be obtained against three of the four effects of high-explosive bombs, namely, against blast, fragmentation and demolition. Experience in Barcelona has proved this course to be well worth while. In that city casualties per ton of bombs dropped have been much reduced since proper protective measures have been taken and the inhabitants have learned to use them.

Shelters are best located below ground level where they are secure against blast and splinter effects. A basement shelter should have immediately over it a floor capable of taking the load of the superstructure if demolished. Calculation of loads shows that the resulting floors will not be excessively thick or expensive. Such loading is from 200 to 350 lb. per sq. ft. additional to normal live and dead loads. Precautions must also be taken regarding gas-proofing, alternative means of escape, flooding, and ease of entry to the shelter from the building.

Wherever possible shelter accommodation should be sealed against entry of gas. If it is unventilated there should be 75 sq. ft. per person of absorbent surface in walls, roof or floors.

In considering structures alone it has become clear that the best type for resisting the effects of high explosive is the framed building of steel or reinforced concrete with light panel walls or large areas of glass.

There is the serious problem presented by working-class tenements. These are almost invariably sited in congested areas. The sites of tenements are usually excavated only to foundation requirements; I suggest that some increased excavation would provide a basement wholly or partly below ground level which would serve as a good shelter. Peace-time uses for the basement such as recreation rooms, communal laundries, perambulator and cycle stores could well be found.

R.I.B.A. NEWS BULLETIN

British Architects' Conference.—The conference at Bristol opens on Wednesday next with an informal reception at the Red Lodge at 8 p.m. The inaugural meeting will be held at the Victoria Rooms on Thursday morning. The Lord Mayor's reception at the Art Gallery and Museum is on Thursday evening, and the conference banquet on Friday evening.

Annual Elections.—The result of the annual election of Council will be announced at a general meeting on Monday next at 8 p.m.

Visit to London University Buildings.—A visit of members to the new buildings of London University will take place on Saturday, July 2, at 2.30 p.m.

R.I.B.A. Camera Club "Ramble."—A photographic outing to Regent's Park will take place on Saturday, June 25, in which all members and prospective members of the club are invited to take part. As the subject of the next portfolio is to be "Regency Architecture," this visit should prove both valuable and interesting. The party will assemble at the R.I.B.A. Building at 2.15 p.m., and members wishing to take part should write as soon as possible to the Hon. Secretary of the Club, Miss Alma J. Dicker, at the R.I.B.A.

OFFICIAL DEPARTMENTS

III: THE AIR MINISTRY

[*By R. D. MANNING*]

This article is the third of a series of five devoted to conditions and opportunities in large official architects' departments. To inform the profession of strong and weak points in representative official departments is the immediate intention of these articles. The formulation of a standard system which provides the best practicable opportunities for salaried architects is the ultimate intention. The articles are based upon practical data supplied by men working, or until recently working, in the departments concerned. With this reservation the facts stated and conclusions drawn are wholly the author's.

AN architect might be excused for believing that a huge programme of building work carried out by an important Government department would be, as a matter of course, under the direction of an architect with a staff of assistant architects, surveyors and technical engineers.

Well, look in the Air Force List, under the Department of the Air Member for Supply and Organization, where will be found the Directorate of Works, containing a list of 88 names, of which no fewer than 51 bear qualifications in various branches of engineering and surveying. The only architectural classification is that of one solitary architectural adviser, who is a qualified architect. I am informed that this appointment was only made recently, within the last few years. There is a group labelled "Technical Assistants," containing four qualified architects and one engineer. There is one other architect, classified as a superintending civil engineer. Thus there are six qualified architects, four of them in subordinate positions, against 51 engineers and surveyors.

This, then, is the Air Ministry Architectural Department, responsible for the acquisition and layout of land and the design and execution of buildings for aerodromes, barracks, officers' quarters, workshops, bomb-stores, hangars, etc., both in this country and overseas. The cost of works and buildings alone, I am told, was approximately £11,000,000 in 1937 and for 1938 is estimated at £16,000,000.

The work is, of course, specialized, but no more so than schools or hospitals or housing, and I am told that the engineering work involved is no more peculiar than the structural engineering which normally comes under architectural control in, say, factory work.

Conditions in this department appear to be so extraordinary that it is, I think, necessary to emphasize the fact that my information on the subject comes from a number of men of widely varying ages and experience, who have spent periods up to ten years with the Ministry; they are definitely not "men with a grievance," but men who desire freedom to do their work properly, who are genuinely perturbed at the conditions with which they have to contend, and are sufficiently public-spirited to risk defiance of the threat of victimization which is inherent in most official offices, where criticism from outside is bitterly resented, while at the same time it is suppressed from inside by the threat of dismissal or stoppage of increments and promotion.

Organization

The Directorate is organized mainly in the shape of an engineering and surveying department, there being no recognition of architects as such, with the solitary exception of the architectural adviser, whose position, I understand, bears no comparison with that of the chief architect in any normal official architectural department.

In addition to the officers listed in the Air Force List there is a large staff of assistants, mainly architects. The total number employed varies, of course, but is at present about 400 (excluding outstations), of whom perhaps 150 are on the permanent establishment. Most of the staff are now on a graded salary basis, with or without permanent posts. The maximum salary for drawing office staff was £350 per annum, but has recently been raised to £450.

Leave is generous, as in most Government departments, varying from 21 days to 48 days, but there is considerable discrimination in certain categories between permanent and temporary staff. Sick leave for permanent officers is allowed up to six months in any one year.

Normal working hours are good, 9.30 a.m. to 4.30 p.m., but a considerable amount of overtime is worked, up to 16½ hours per week, of which the first 3½ hours is not paid for.

General Procedure

It has been remarked that there is no architect in any position of real authority. This is reflected in the methods employed in carrying out the work. The drawing office staff appear to be treated simply as draughtsmen whose function is to obey instructions.

They are not expected or indeed allowed to design their work in the sense that obtains in private offices or, for that matter, in most other official offices. A standard neo-Georgian style has apparently been imported from the Office of Works and the War Office, which is rigidly adhered to. When one considers the scope for first-class design offered by Air Ministry work, so essentially of the twentieth century, it is most disheartening to see such magnificent opportunities being thrown away.

This standardization of design leads naturally to a widespread use of type drawings, with the accompanying tendency to cling to outworn methods and ideas. I am told in fact there is a considerable amount of money wasted in this way—for instance, in the common use of 18-in. and 22½-in. solid brickwork for ordinary two-storey work.

Subdivision of Work

The work of the department is split up to a degree which would be unimaginable in any real architect's office.

One would think, for instance, that an aerodrome, with its hangars, workshops, stores, barracks, etc., would naturally be carried out under a single senior architect with his own group of assistants, co-operating as necessary with the technical specialists.

But there appear to be no architects in real control of anything.

One group of men does nothing but small-scale layout plans, which are handed on to other sections. The different buildings are spread out amongst different sections; one man does sketch plans of one building; other men do sketches of other buildings of the same scheme; different men again do the working drawings. There is a section containing about 40 men, subdivided into three groups, doing nothing but foul sewers, roads and surface water drainage, and heating ducts respectively. One would think it would be as reasonable to have different men designing different elevations of the same building. Many of this section are architects, some qualified, but requests to be transferred to more suitable work are refused. I understand that assistants never see a specification after finishing the drawings; that materials and fittings are chosen by the quantity surveyors "with the approval of the architectural adviser," while there is no possibility of ever seeing a job, or even photographs of it, after completion.

Lack of Co-ordination

There appears to be a complete lack of co-ordination between the multitudinous subdivisions, and a deplorable amount of indecision in higher quarters, with consequent alterations and redesigning different parts of jobs. The result is a sort of continual general post of alterations and changes of policy following the component parts of any individual scheme round the various sections, never catching up with the work done on the drawing-boards, and necessitating continual waste of time altering and scrapping drawings. It has been found necessary to install electric erasing machines, which I am told are in constant use.

No effort seems to be made to utilize men according to their age or experience. There is a total absence of tracers and juniors. The result is that senior men waste their time on work which in any normal office would be done by juniors. One man, for instance, over forty and of corresponding experience, told me he had recently been doing F.S. details of joinery, while he took seven months to finish the drawings, including all the tracing, of a job which, had he had proper assistance, would have been roofed by that time.

This lack of co-ordination and apparently chaotic staffing arrangements lead to very surprising results in the way men are used. I am told there have been cases recently of men who had previously been interviewed for jobs, being telegraphed for to join at once. One senior assistant who responded was given some small wooden shed to detail. Another man could not be used at all, and was idle for several days before work was found for him. Yet another new man, used to private offices, was given some

small job, which was urgent. He finished it in 1½ days and reported accordingly. His chief expressed astonishment, saying he had meant, by urgency, that he wanted the job in 3–4 weeks.

Promotion and Status of Staff

The drawing offices rank officially as a civilian department, and contain no serving R.A.F. men. The administrative posts referred to in the Air Force List do contain, however, a number of men holding military rank, including the Director himself.

This is an important point, because my information indicates a strong element in the organization of military formalism and snobbery. There is a definite lateral division between the drawing office staffs and executive officers, inasmuch as I am told that promotion from the former to the latter is not recognized, administrative posts being invariably filled from outside. If an assistant wishes to apply for such a post, he must resign his job in the drawing office before his application will be considered. Senior men, most of whom are married, naturally dare not take the risk of falling between two stools. In effect, therefore, this system means "once an assistant, always an assistant."

The system really embodies, of course, the ordinary military attitude towards officers and other ranks. This is clearly shown in connection with foreign service. Any member of the Works and Buildings Directorate may at any moment be detailed for service on foreign stations, and it is reported that refusal to accept such service may involve dismissal. Grade II and III architectural and engineering assistants, many of whom are qualified men, are classed abroad as "sergeants"; what this means with regard to social intercourse, membership of clubs, etc., on a foreign station will be readily appreciated by anyone with experience of the British abroad.

All my informants are unanimous that there is very bitter feeling throughout the staff on the subject of salaries and promotion.

The need for increasing staff on a rising market leads to difficulties for the authorities which it would be unjust to ignore, and it would be unreasonable to expect a scaling up of salaries on the permanent establishment simply on account of what may be temporary "boom" conditions. But the dissatisfaction to which I refer concerns the temporary staff.

Complaints appear to be centred on definite injustices in the granting of increments and promotion, and on the manner in which protests are met. For example, when the maximum salary for drawing-office staff was raised from £350 to £450 per annum, new men were paid at the higher rate, while those with longer service were left at the old rate. Widespread protests have been met with repeated promises that a Promotion Board would shortly sit. This has not materialized yet. Meanwhile, a flat rate increment of £12 per annum, regardless of salary or grade, was offered to the men concerned, and each was pressed to sign a paper stating that he was satisfied with this increase. It is difficult to comment temperately on this story.

Several men have declared that the drawing offices are in a more or less chronic state of incipient revolt, which is damped down by promises of redress which are not honoured; that it has been found that applications for increments or promotion have not been forwarded to the responsible authorities, despite assurances to the contrary; that there are some 50 Grade III assistants who had been promised or were due for promotion, but were told there were no vacancies in Grade II, only to find recently that about 20 men have been engaged from outside, all on Grade II.

The position with regard to permanent establishment also appears to be unsatisfactory. It is officially laid down that a minimum of five years' service is necessary to qualify for a permanency. This is in any case a long period, but I am told that a number of men have been waiting up to ten years and are still on the temporary staff, having been dissuaded from leaving by promises.

Staff Association

There is a Professional Staff Association which is a constituent body of the Institution of Professional Civil Servants, which is supposed to look after the interests of these men. But this body does not at present desire "to recruit persons entered on purely temporary appointments for a fixed period." In other words, the men who chiefly need it have no means of protection except by their individual efforts and the goodwill and good faith of their immediate chiefs.

The staff association apparently has two potential channels of activity—either through a departmental Whitley Council or by direct negotiation with the Establishment Board of the Ministry. It is plain, therefore, that this discrimination against temporary staff does involve a serious deprivation to those who are not accepted as members of the Association.

Working Conditions

Various expressions have been used to me to describe the accommodation and working conditions in this office; for example, "extremely trying," "very bad" and "disgraceful."

Most assistants apparently work in a series of huge open drawing offices, each containing about 60 men. The space available is quite inadequate, both as regards drawing and tables for laying out work. Drawings have in consequence to be kept rolled or folded or in heaps, and reference to them becomes a source of irritation and waste of time, while their condition deteriorates very rapidly.

Any absence from the drawing boards, even to discuss questions arising out of the work, is frowned upon. Men are expected to make inquiries through their seniors, who pass them up the various stages of the hierarchy, with endless waste of time and obvious possibilities of mistakes and misunderstanding by the time the replies filter down to the original assistant.

In one drawing office a printing machine has been installed for urgent work. This is in constant operation, and the noise and continual flashing of light from it make concentration on their work almost impossible for the men in this room. One man hung up a screen which mitigated the nuisance slightly. He was immediately reprimanded.

Disciplinary matters generally are in the hands of a clerical staff, who are considered to be far too much influenced by the military element in the administration. All my informants have expressed resentment at what they call "being treated like schoolboys." There is a current suspicion that the administration have spies among the staff who report breaches of discipline, complaints and private conversations. There may be no foundation for this suspicion, but the mere fact of its existence does not speak well of the atmosphere prevailing.

Atmosphere

This aspect needs to be underlined. It is evident from my information that, whatever the causes, the whole department is permeated by a miasma of discontent, apathy and suspicion, with a strong underlying element of fear.

There appears to be so much injustice with regard to the allocation of salaries and promotion, that many assistants suspect discrimination in favour of those who make themselves agreeable to the seniors.

This feeling is heightened by a consciousness of being subordinate to men who are not architects and have no understanding of architectural work, and a belief that many of these men are actually incapable and only hold their positions by virtue of long service.

It might well be asked why, if conditions are so bad, men remain in this office. Many do leave, of course; the Ministry continually advertises for more staff. Some remain for various personal reasons; some in the hope that promises made to them will be fulfilled. But one most potent factor is the now notorious arrangement between certain official departments by which movement of assistants between them is obstructed. It is significant that the Air Ministry is reputed to be the worst offender in operating this indefensible practice. In addition to men who actually suffer from it, large numbers of other men, familiar with its existence, hesitate even to apply for other jobs because they fear that if their release is refused, they will be victimized for having tried to leave.

Conclusion

It is a lamentable fact that my inquiries failed to elicit any favourable comments whatever on this office, save those regarding hours and leave. It has apparently all the failings characteristic of so many official departments in an exaggerated degree, intensified by the militaristic element, which is very noticeable.

It is difficult to see that much improvement could be effected by minor changes. It seems to me axiomatic that such an organization should include a self-contained architect's department, working in co-operation with any other sections necessary for the Ministry's particular needs, but itself under the absolute control of architects, and organized accordingly. All the elements necessary to efficient work can be found in the group system already advocated in these articles and elsewhere. Men who have scope to use their abilities and can work in direct co-operation with their seniors, instead of having to work in spite of them, will never lack enthusiasm and the average level of their product will be correspondingly high, with the obvious corollary of speed and economy in erection.

Staff organization should be under the control of the chief architect. There should be a definite salary scale for temporary assistants as well as for the permanent establishment, and if the former

has to be varied owing to the external conditions, then all temporary staff should have the benefit, not only the newcomers.

It is astonishing that the R.I.B.A. and other professional bodies concerned have not approached the Ministry about the conditions obtaining in this department, both in the interests of their members, and of their work. It is a parrot-cry in certain quarters that criticism of a department engaged in work of urgent national importance is "unpatriotic." This will not bear a moment's examination. The importance of the work is the prime justification of criticism. There are plenty of men who would be glad to devote their abilities to work like this, asking as it does for modern treatment, had they any faith that their abilities would be used. A thorough reorganization of the department would work wonders.

Cities and Towns	Shellings from the Sea	Bombings from the Air	Bombs	Shells	Killed	Wounded	Buildings totally destroyed	Buildings partially destroyed
Barcelona	3	32	542	69	955	1070	133	534
Tarragona	2	21	439	61	121	152	12	63
Lerida	—	1	560	—	198	173	49	46
Reus	—	17	600	—	120	147	41	10
Tortosa	—	6	66	—	14	48	—	15
Guixols	2	12	201	20	25	80	22	343
Figueras	—	2	77	—	16	33	18	3
Port-Bou	5	10	87	197	1	5	4	20

AERIAL BOMBARDMENT
EFFECTS AND DEFENCE IN BARCELONA

[By F. SKINNER]

DURING the past three days a Conference has taken place at the R.I.B.A. to decide upon the most effective form of architectural collaboration in Air Raid Precautions and the decisions taken will soon be made known to the profession.

In view of the responsibilities which architects will be asked to assume the JOURNAL *considers Mr. Skinner's survey of the position in Catalonia to be of exceptional importance. Mr. Skinner, of the firm of Tecton, recently visited Barcelona with the express object of inquiring into damage by aerial bombardment and the effectiveness of precautions. His findings are summarized in the articles appearing this week and next.*

The article below consists of three parts: Statistics of raids and casualties; types of bomb and general effect; and a more detailed description of the effects of three particular bombs. The second article will describe the work of the Committee of Passive Defence, which controls and co-ordinates all air raid precautions, rescues and repairs in Barcelona.

These articles are concerned solely with facts. Bombs are bombs, wherever they fall, but their effects can easily be misrepresented, and Mr. Skinner has necessarily had to rely upon the Committee of Passive Defence of the Spanish Government for his statistics of casualties and a number of his photographs. Comparison between these statistics and reports in the general press, however, makes it seem improbable either that casualties have been exaggerated to influence world opinion or understated in order to avoid alarm in Catalonia.

INTRODUCTION

THE following notes were written after a visit to Barcelona of about six days. I had not previously studied the problem of Air Raid Precautions very closely; but I was familiar with the main lines of the problem through collaboration with the A.A.S.T.A. Committee which formulated an outline questionnaire, and to whom I have handed over all the material which I collected for use in their report which is to be published shortly.

There will certainly be omissions from my notes and possibly some redundant material, but I believe that, nevertheless, they should serve a useful purpose. The information contained in these articles is based partly on observation and partly on material supplied by various officials, but especially by Señor Tor, Chief of the Junta De Defense Passiva De Cataluna (Committee for Passive Defence in Catalonia) and Señor Perera, the Chief Engineer of the same Committee.

It seems desirable that more architects and engineers should visit Spain in order to get first-hand information about the effect of air raids and the effectiveness of the precautions which have been taken against them, in connection with the Air Raid Precautions programme which is being undertaken in this country.

CASUALTIES

Catalonia has now been subjected to bombardments for over eighteen months. The table above (from the newspaper *Las Noticias*) is useful in showing the number of casualties caused and the amount of damage done by a given number of bombs up to February 27, 1938, in certain towns in Catalonia.

The figures up to the present date will certainly be at least double those given in this table. For instance, the number of people killed in Barcelona alone in the three days, March 16–18, 1938, was 912; while at least 400 were killed in the raid on Alicante on May 25.

These figures are given in order to create some sort of realistic background to the whole problem of Air Raid Precautions which in Spain, at any rate, are synonymous with the provision of shelter against high explosive bombs.

TYPES OF BOMBS

The types of bomb used in bombardments in Catalonia are as follows:

High Explosive Bombs: Those used are of two types, delayed-action and percussion type. The delayed-action, high-explosive type, which forms the majority of those used, are generally of three sizes:—

500 k. (1,100 lbs.)
300 k. (660 lbs.)
100 k. (220 lbs.).

Of these, the commonest are the 100 k. bombs. Particularly in the earlier part of the war, these bombs were predominantly used in Catalonia and the early bomb-proof shelters were based on experience of this type of bomb. The 300 k. bombs have also been very largely used, especially in Barcelona. Comparatively few of the 500 k. bombs have been dropped.

The percussion type, which explodes on impact, are usually of about 30 k. to 50 k. in weight (66 lbs. to 110 lbs.), and a fair number of these have been dropped in Barcelona.

The other type of bomb which has been used, besides the high explosive, is of the incendiary type, filled with thermite. A comparatively small number of these have been used (never more than 20 per cent. in any bombardment). Their effect in Barcelona is very small owing to the fireproof construction of almost the whole city. The weight of these bombs is either about 2–5 k. (4½–11 lbs.) or 33 k. (73 lbs.).

GENERAL EFFECTS OF BOMBS

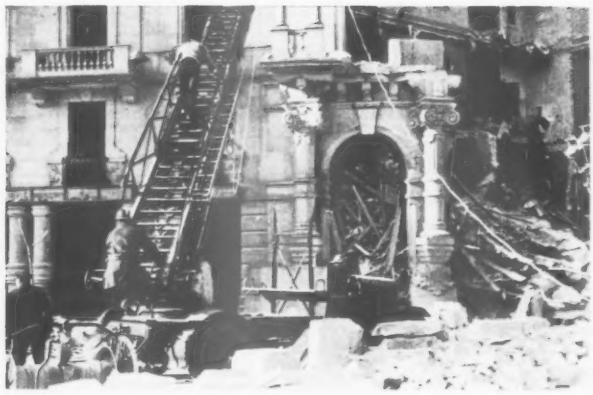
The effects of the two kinds of explosive bombs are very different. The delayed action type, if they fall on a house, invariably explode at about the third floor down. In (1) the place where the bomb exploded can be clearly seen at the third floor down by the fact that a larger part of the external wall has been blown away at this point.

In the case of a house of 5–7 storeys (the great majority of houses in Barcelona are of this type) the effect is always to destroy the whole house; the top part of the house collapses owing to its support being blown away from underneath, and the lower floors collapse under the weight of the falling debris. The effect of a direct hit of this type of bomb in terms of material damage and loss of human life is, from the point of view of the attackers, 100 per cent. One bomb of 300–500 k. can easily demolish two seven-storey houses in this manner. Two bombs each of 300–500 k. fell in a residential quarter in Barcelona and entirely destroyed three six-storey houses with a total frontage of 80 ft., killing between 80 and 90 people, many of whom were buried under the wreckage. This was at 3 a.m., when the houses were full of sleeping people. (2) shows the effect of the collapse of a six-storey house due to a bomb of this type falling on it, and the debris from the upper part of the building piling up at ground-floor level. If a bomb of this type falls on a two-storey house (see (4)), it does not, of course, explode until it reaches the ground, where it penetrates a certain distance, and this tends to lessen the destructive effect of the explosion on the building. In this case the material damage is considerably less. In the photograph, the place where the bomb exploded (again marked by the greatest destruction of the outside walls) can be seen right at ground level, and also the hole in the roof where the bomb entered.

If a delayed-action bomb of this type falls in the street, it penetrates some way into the ground and causes quite a large crater. (5) shows the effect of such an explosion; this example is actually from Madrid. The size of this crater, about 20 ft. deep, is consistent with the effect of a 500 k. bomb, and represents the greatest depth to which any bomb has penetrated in Barcelona (7 metres).

The effect of the percussion type of bomb is very different. If such a bomb hits a house, it immediately explodes, the effect probably being to blow the top part of the house off. (See (6) and compare with (4) for a comparison of the effect of the two types of bomb on exactly similar houses.) If the bomb falls in the street, it forms only a very small crater, not more than 3 or 4 ft. in diameter and perhaps 18 ins. deep (7). The blast from the explosion and the splinters, however, fly out absolutely horizontally. In the photograph the splinter marks can be seen all over the road surface, and the fact that the kerbstones have been blown away should be noticed. Such

1



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bombs are very deadly if they fall in a crowded street owing to their terrific lateral explosive force. It is difficult to arrive at accurate estimates of the effects of such bombs, but there is general agreement that in an unobstructed open space their blast can kill up to at least 200 yards, and probably considerably further. (8) is inserted to show the high casualty rate of blast and splinters from such explosive bombs. The interior of a barber's shop is shown: 12 persons, the barber and men occupying chairs, were killed. Notice that some of the light globes are not even broken.

A good picture of the net result of a typical bombardment with bombs of both the above high-explosive types may be obtained from the following figures:—

On March 16, 17 and 18, 1938, there were a series of raids on Barcelona; bombs were dropped in relays by generally not more than six aeroplanes at a time over a period of three days. The number of bombs dropped at each raid were as follows:—38, 7, 12, 26, 11, 6, 16, 11, 14, 29—170 bombs.

The number of people who died (within 10 days of the raids) was 912. It is estimated that approximately 10,000 people were displaced from demolished and damaged houses.

6

8

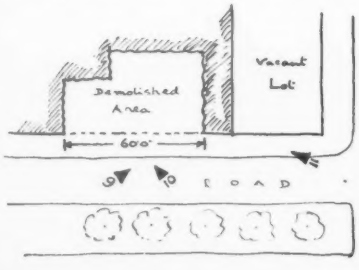
7

EFFECTS OF PARTICULAR BOMBS

The following notes, sketches and photographs were prepared in order to give architects a rough idea of the damage done by one bomb of the types used in Barcelona:—

Example 1 (photographs 9, 10 and 11): A row of five-storey houses was hit by a bomb, probably a 300 k. It will be seen that the bomb exploded at the fourth floor-slab. The construction of this house, as of 90 per cent. of the buildings in Barcelona, is of brick or masonry structural walls, with steel joist and brick arch floors.

Example 2 (photographs 13–17): A percussion type bomb of 30–50 k. fell in the street. The crater caused is shown (in (7) and (13)), where the chipped kerb can also be well seen. (14) shows a cast-iron lamp standard



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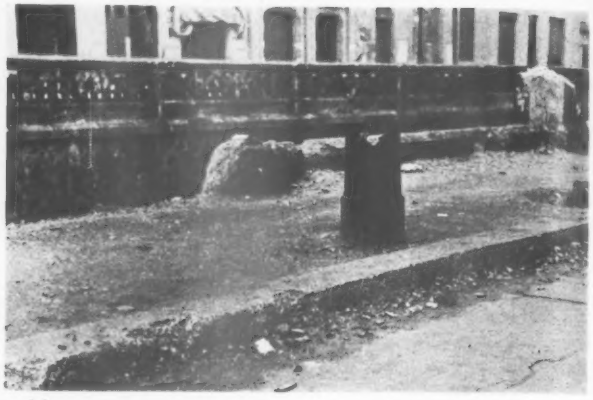

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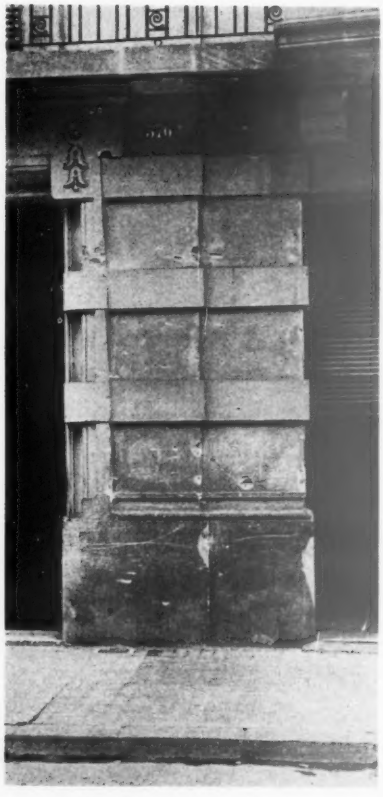

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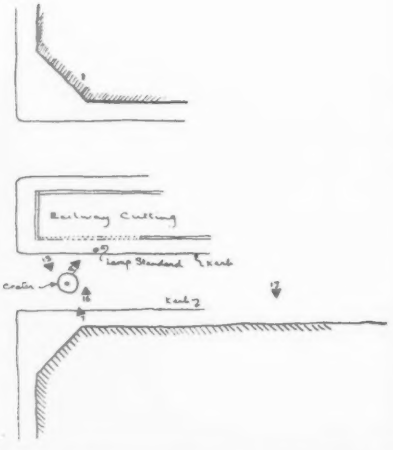

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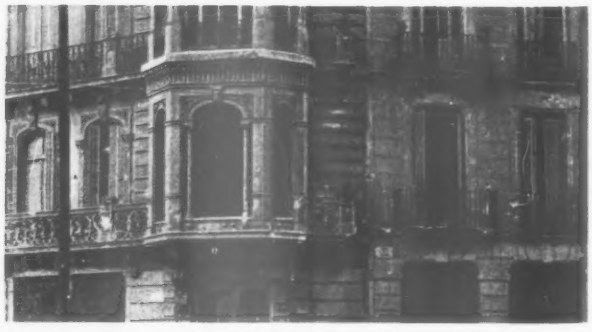


16

about 15 ft. from the crater, the splinters having penetrated right through the base. (15) is a general view of the scene of the explosion showing that the structure of the adjacent building is quite intact. (16) shows the building on the opposite side of the street about 150 ft. away, and (17) shows the considerable splinter marks at a distance of 170 ft. from the crater along the street.

Example 3 (photograph 18) : One bomb fell in a narrow street of the working-class quarter of Barcelonetta, near the port. Two two-storey houses were completely demolished and two others partly demolished. It is comparatively unusual for a bomb falling actually in the street to do so much damage ; the actual structure of the house in such instances is usually not destroyed. In this case, however, the very narrow width of the street (about 15 ft.), by confining the explosion, accounted for the amount of damage done. The bomb crater may be seen to the right of the photograph in the middle of the street between the demolished houses.

I have tried to make clear in these notes the actual effect in damage and loss of life caused by bombs of the type used in Barcelona. It should be borne in mind that these are the result of comparatively small bombs, only a few 500 k. (½-ton), and no 1,000 k. (1-ton) bombs have been used. Nevertheless, certain exaggerated accounts have certainly been given of the effect of the bombardments ; for instance, one account I have read gave the impression that one bomb could cause the complete demolition of buildings on a frontage of over 200 ft. in length. There is only one place in Barcelona where such large-scale damage has been done, in a wide street at the centre of the city where buildings on both sides of the street over a frontage of about 200 ft. have been entirely demolished in one bombardment ; but here, although it is difficult to arrive at the exact cause of the damage, it is clear that it is not caused by one bomb. The official records show that six bombs were dropped here, and certainly the amount of damage done is approximately consistent with the damage done by six bombs of about 300 k. I was also informed by several persons that the great damage caused here was due to a powder lorry being hit and exploding, but I cannot vouch

for the accuracy of this information. In any case, the devastation caused in this particular place was quite exceptional; generally speaking, the actual destruction of buildings is limited to frontages of from about 25 ft. to about 60 ft. or maximum 80 ft., depending on the size of bomb dropped.

18

LETTERS FROM READERS

King George Memorial

SIR,—At a largely attended meeting of the Amenities Group (all parties of both Houses of Parliament) held on May 31, it was reported that a decision was likely to be taken by the Executive Committee of the King George V Memorial Fund on June 14 as to the site of the proposed statue, and fears were expressed that the site selected might involve the destruction of the Georgian houses in Old Palace Yard.

It was resolved, with two dissentients, to offer strenuous opposition to any such proposal, which was believed to be contrary to the advice of the Royal Fine Art Commission. It was considered essential that the Government should obtain the recommendation of the Commission before submitting any scheme to Parliament for approval.

Sir Giles Gilbert Scott, R.A., lent the models for the Members of Parliament to see, and was there in person to describe them. Professor A. E. Richardson, A.R.A., attended, and expressed his opinion as to the fitness, etc., of the situation. Sir George Broadbridge, former Lord Mayor of London and chairman of the sub-committee handling the matter, was there in person and spoke. Lord Ullswater was present and spoke, and a representative of the Middlesex County Council also attended and addressed the Group.

The matter was debated from very many angles, and the above resolution was passed with only two dissenting votes.

ALFRED C. BOSSOM
Secretary, Amenities Group
(All Parties, Lords and Commons)

ALFRED BOSSOM, M.P.

A. W. BARR (Secretary, Association of Architects, Surveyors and Technical Assistants)

LICENTIATE

Salaried Members

SIR,—The unprecedented interest which is being taken this year in the elections to the R.I.B.A. Council has resulted in the nomination of a number of candidates who are in salaried employment, and fears have therefore been expressed that a splitting of the vote may nullify the efforts of the many who are dissatisfied with the present policy and composition of the Council.

Before the elections next year we hope that it may be possible to secure, by a conference or other means, general agreement as to a choice of candidates for whom all salaried men may vote. This Association has shown, by its choice of candidates this year, that it does not confine its support to its own members, but is desirous only of furthering the interests of all salaried men. It is prepared in the future to support any who have shown that they have these interests at heart. But in the light of the events which have taken place on the R.I.B.A. Salaried Members' Committee, we cannot feel certain that these interests will be furthered by the election of the chiefs of large official departments. All too often such men tend—quite unjustifiably—to acquire the same outlook as the private employing architect.

We cannot dogmatize on this point in relation to the present situation, as we have no knowledge of a number of the persons who have been nominated, but we would point out that if salaried men all over the country vote for a local candidate whom they happen to know, their chances of representation on the R.I.B.A. Council are far fewer than if they vote for those men for whom the A.A.S.T.A. can vouch, whose names have already been published in your issue of May 26, and who have a real chance of nation-wide support.

On behalf of the Executive Committee of the A.A.S.T.A.,

A. W. BARR, Secretary

Architectural Employment

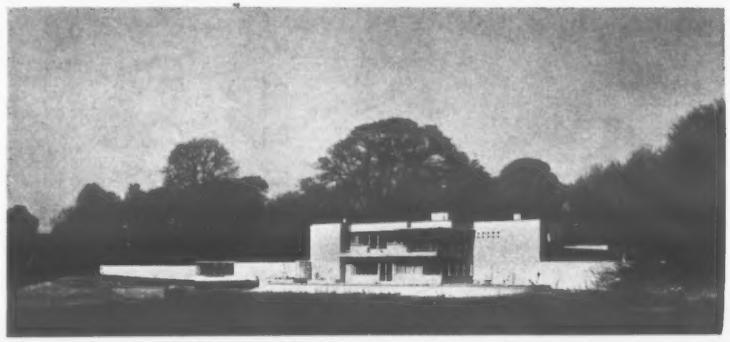
SIR,—The manner of Mr. R. D. Manning's attack on "attendance books" shows that at long last the psychological trickery used in "depressing" the assistant is becoming recognized and resented. While Mr. Manning is still at it, may I bring to his notice what is by far the most insidious mechanism being used to that end, namely, the false use of words. Give a dog a wrong name and down him! Here are two typical examples:

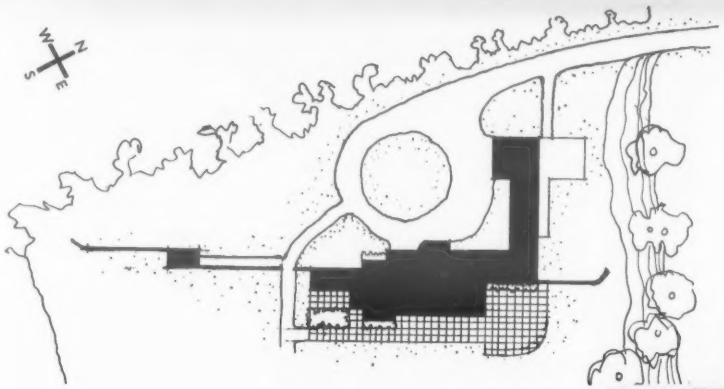
(1) Grading in departments (such as Mr. Manning has been discussing) offers three designations: architect, assistant architect, and *architectural* assistant. Does being "architectural" mean that an assistant has corporally architectural proportions or a "pediment in his speech"? Does it mean that he is there, as it were, for the mere purpose of being "moulded"? I recommend to Mr. Manning the following question: Why should anybody, who, by Act of Parliament, is a Registered Architect, be denied in his work the use of his rightful designation of *architect*?

(2) Everybody knows that work and employment are by no means the same thing. A man who *works* and is known for his work tends to look upon himself as an individual in the scheme of society. A man who is merely *employed* tends to look upon himself as a cypher—a drone—in a scheme of society that is being carried on far above his head. I ask: Why should an assistant's work be so invariably stressed as his "employment"? What is your answer, A.A.S.T.A.? I myself cannot avoid the conclusion that there must still be in the honourable profession of architecture a number of persons with careerists' propensities, who tend to "gain" by the "depression" of assistants.

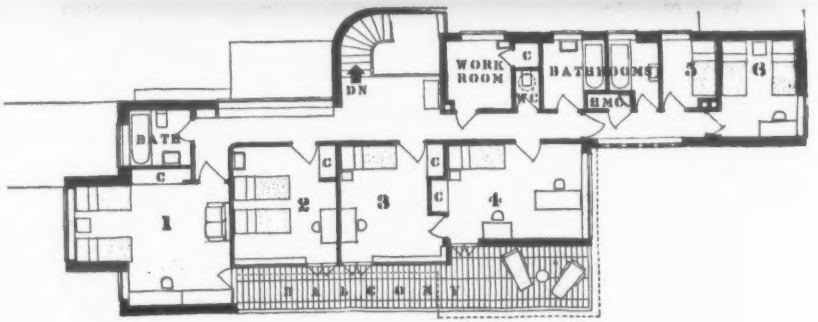
LICENTIATE

HOUSE NEAR HENLEY-ON-THAMES: BY CHRISTOPHER NICHOLSON





SITE PLAN



FIRST FLOOR PLAN

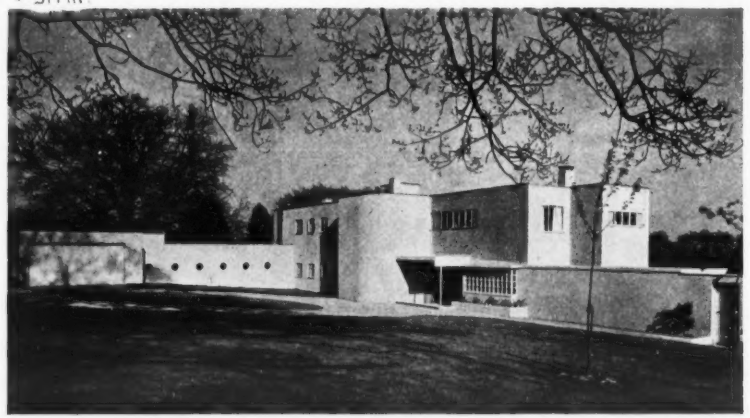
GENERAL—*The client (Dr. Warren Crowe) required a house in the contemporary manner, to be run by two servants and chauffeur-valet, with accommodation as given. The house was to be openly planned with loggia, breakfast terrace, sleeping porch and balcony reached from all the principal bedrooms.*

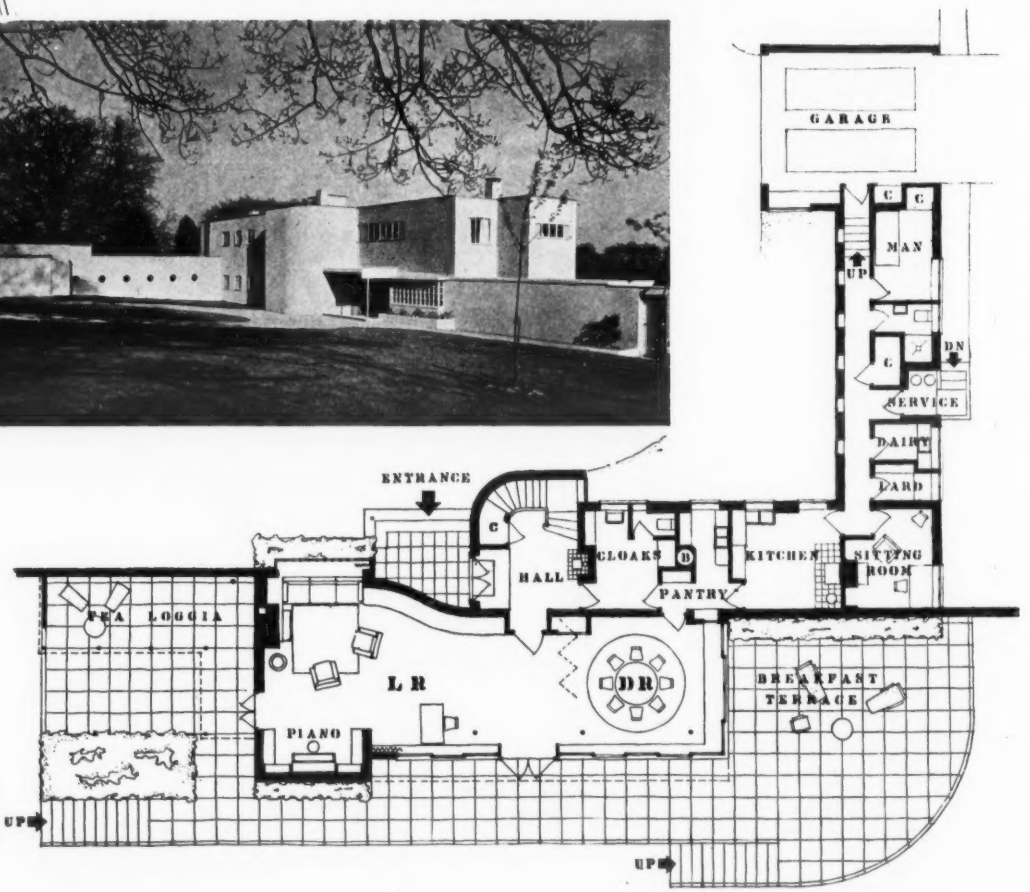
Plans submitted to the local authorities were passed on to a panel of architects. The panel at first rejected the design, but after considerable delay was persuaded to revise its decision subject to the final colouring of the house being approved by the panel and also to a line of trees being planted between the village and the house.

SITE—*Fawley Green, on the downs above Henley-on-Thames. The site falls to the south and west at a gradient of 1 in 8 and is approached by a private drive from the north-east.*

CONSTRUCTION AND EXTERNAL FINISHES—*Steel framed with 11-in. cavity brickwork rendered externally. The balcony and cill wall over and the canopies where shown are in reinforced concrete. All plumbing is taken in internal ducts. The artificial stone coping is a plum colour; the external walls bleached brick colour; windows, off white. The terracing is a warm buff, with nigger brown jointing. The windows are standard metal casements. The concrete paving is in concrete cast in situ.*

Facing page: top, a view from the south. Left and right, two views from the east. On this page is a view from the west showing the entrance forecourt and, on the left, the servic wing.





GROUND FLOOR PLAN

HOUSE NEAR HENLEY-ON-THAMES

DESIGNED BY CHRISTOPHER NICHOLSON

INTERNAL FINISHES—*Windows are standard metal throughout the house, except in the living- and dining-rooms, which have special wood casements and patent catches. Floors are Columbian pine in narrow widths in the living area; lino in the servants' quarters. Doors are flush; straight grained walnut in the principal rooms; painted finish. Fittings throughout were designed by the architect, with painted finish and matt chrome furniture.*

SERVICES—*All heating is thermostatically controlled, and there are additional heaters. Hot water is supplied by electric water heaters.*

Left, the sideboard cupboard under the window in the dining room which is served by a hatch from the pantry. Electric heating tubes are carried below the sideboard. Below, the living room.

The general contractors were R. Mansel and Son. A list of the sub-contractors and suppliers is given on page 1043.

FILING REFERENCE:

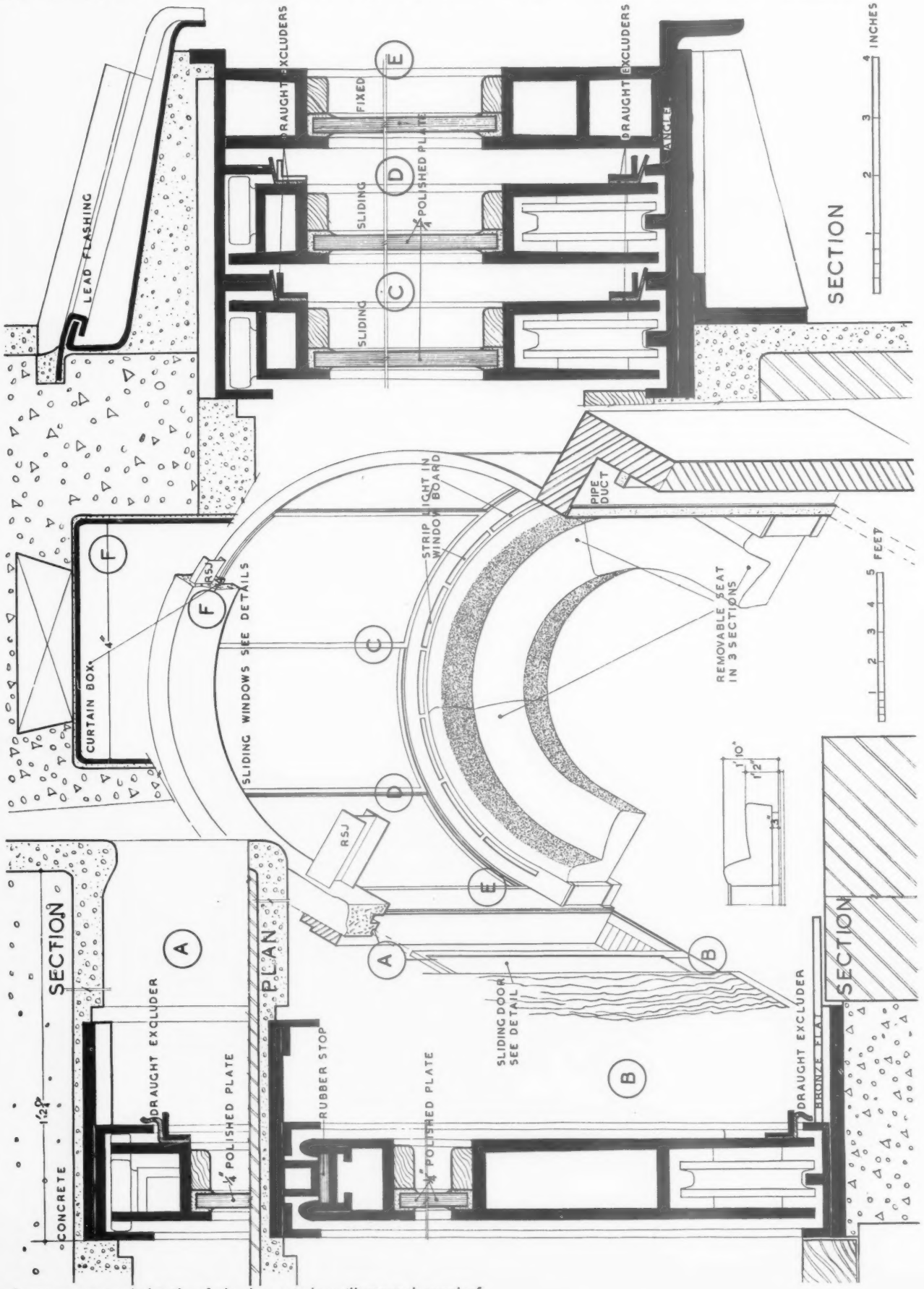
WORKING DETAILS : 661

BAY WINDOW • HOUSE IN CHELSEA, S.W. • MENDELSOHN AND CHERMAYEFF

The bay window illustrated is in the drawing room. It consists of five curved sections, three of which are sliding and two fixed. There is a semi-circular removable seat in three sections, the back of which is at cill level. On one side of the bay there is a sliding door leading to the library. Details are shown overleaf.

WORKING DETAILS : 662

BAY WINDOW • HOUSE IN CHELSEA, S.W. • MENDELSOHN AND CHERMAYEFF



Axonometric and details of the bay window illustrated overleaf.

The Architects' Journal Library of Planned Information

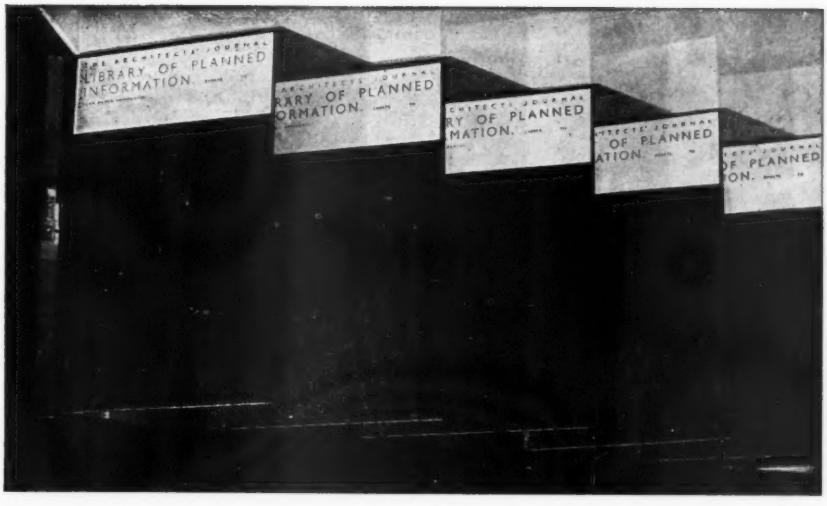
INFORMATION SHEET

SUPPLEMENT

SHEETS IN THIS ISSUE

635 Kitchen Equipment

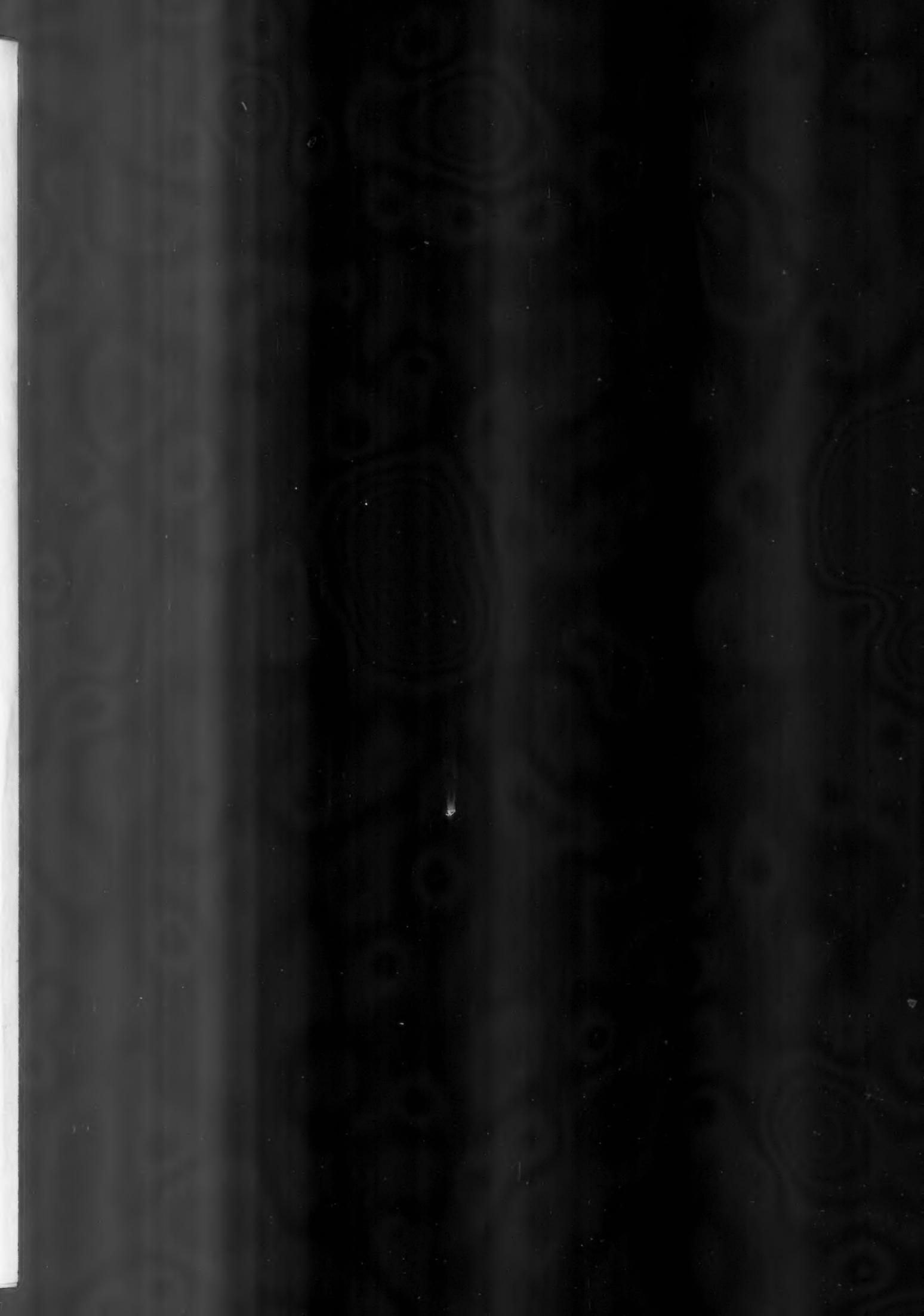
636 Doors and Door Gear

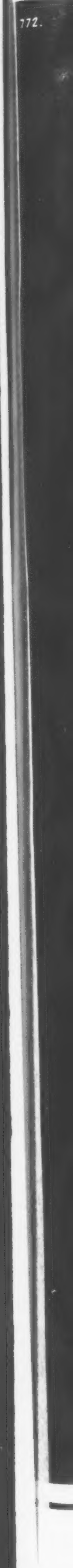


In order that readers may preserve their Information Sheets, specially designed loose-leaf binders are available similar to those here illustrated. The covers are of stiff board bound in "Rexine" with patent binding clip. Price 2s. 6d. each post free.

Sheets issued since Index :

601 : Sanitary Equipment
602 : Enamel Paints
603 : Hot Water Boilers—III
604 : Gas Cookers
605 : Insulation and Protection of Buildings
606 : Heating Equipment
607 : The Equipment of Buildings
608 : Water Heating
609 : Fireplaces
610 : Weatherings—I
611 : Fire Protection and Insulation
612 : Glass Masonry
613 : Roofing
614 : Central Heating
615 : Heating : Open Fires
616 : External Renderings
617 : Kitchen Equipment
618 : Roof and Pavement Lights
619 : Glass Walls, Windows, Screens, and Partitions
620 : Weatherings—II
621 : Sanitary Equipment
622 : The Insulation of Boiler Bases
623 : Brickwork
624 : Metal Trim
625 : Kitchen Equipment
626 : Weatherings—III
627 : Sound Insulation
628 : Fireclay Sinks
629 : Plumbing
630 : Central Heating
631 : Kitchen Equipment
632 : Doors and Door Gear
633 : Sanitary Equipment
634 : Weatherings—IV

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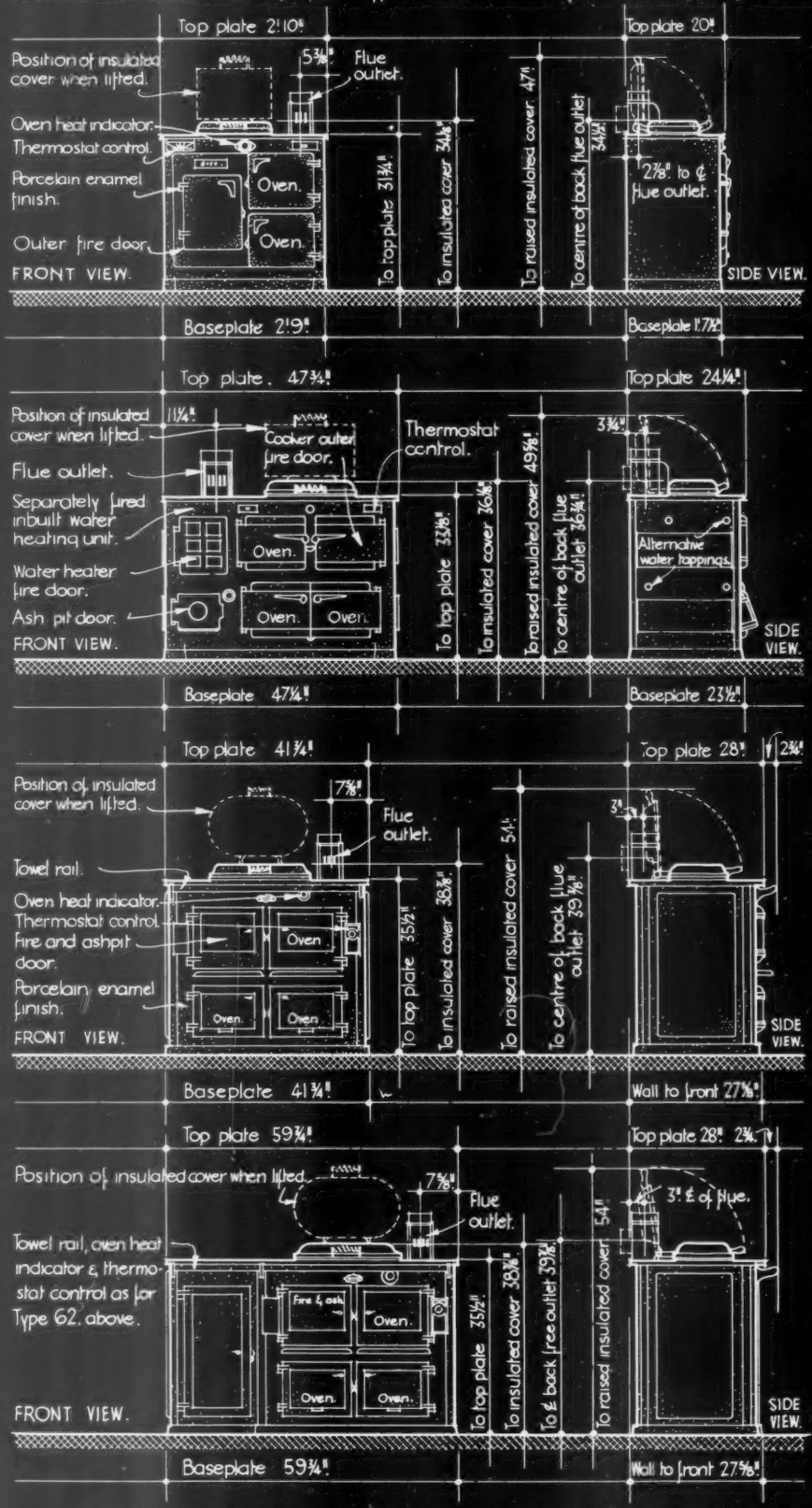
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

ELEVATIONS AND DETAILED DIMENSIONS OF THE •ESSE• HEAT STORAGE DOMESTIC COOKERS:

For minimum installation heights and typical construction of the cookers, see previous Information sheet N°1 of this series.



ESSE FAIRY COOKER:

Cooking capacity, up to six persons, (Ordinary household menus.)

Fuel consumption: 1½ - 1¾ tons per annum.

Ovens: 2 in number, top for roasting, lower for slower cooking, etc. Net size 12" wide by 10" high, top oven 15¼" deep, lower oven 16¼" deep.

Working weight: 739 lbs. approx.

Flue pipes: 3" asbestesse or 3½" C.I. for short lengths only; the diameter is increased for longer runs.

ESSE MINOR COOKER with water heater.

Cooking capacity: up to 8 persons, (Ordinary household menus.)

Fuel consumption: 1½ - 2 tons per annum for cooker only.

Ovens: 2 in number, upper for roasting 12" x 17¼" x 10" high. Lower for slow cooking etc., 23" x 20¼" x 10" high, with detachable baking compartment 12" x 18½" x 6" high.

Working weight, net: 250 lbs. per sq. ft.

Flue pipes: Short lengths, cooker - 3" asbestesse, or 3½" C.I. Water heater 4½" asbestesse, or 5" C.I. In each case diameter is increased for longer runs.

Nozzles for either top or back outlet.

PREMIER ESSE COOKER. Type 62.

Cooking capacity: up to 12 persons. (More elaborate menus.)

Fuel consumption: from 2½ tons per annum.

Ovens: 3 in number, top for roasting 14" x 17½" x 12" high, lower right, (simmering & slow cooking) & lower left (baking), 14" x 18" x 10" high.

Working weight, net: 250 lbs per sq. ft.

Flue pipes: Short lengths, cooker - 3½" asbestesse, 4" C.I. Water heater 4½" asbestesse, 5" C.I. In each case diameter is increased for longer runs.

PREMIER ESSE. With auxiliary oven. Type 72.

Cooking capacity: up to 20 persons, or 40 persons for institutional catering.

Fuel consumption: from 3 tons per annum.

Ovens: Exactly as Type 62 above, with the addition of an auxiliary oven having internal measurements of 16½" wide x 25½" x 21¾" deep.

Internal door opening 14" wide.

Working weight; net: 250 lbs. per sq. ft.

Flue pipes: as for Type 62 above. Water heater may be fitted on right or left end.

Information from The Esse Cooker Company (Proprietors, Smith & Wellstood, Ltd.)

INFORMATION SHEET : KITCHEN EQUIPMENT : HEAT STORAGE COOKERS : N°2.

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

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 635 •

KITCHEN EQUIPMENT

Product : Esse Heat Storage Cookers
Domestic Models. Sheet No. 2

General :

This Sheet is the second of two illustrating the Esse heat storage domestic cookers and shows in diagrammatic form the general arrangement and dimensions of the Fairy, Minor and Premier types. Sheet No. 631 dealt with the minimum heights required by these models, with and without back panels and plate racks, when installed in recesses and outstanding against walls, together with the typical operating principles and construction of the cookers.

Each of the three models shown is provided with an insulated bolster or cover for retaining the heat of the hot plate when this is not in use. All household models are available with plate rack and back panel if desired, and, with each, certain specific utensils and accessories are supplied. There are over fifty types or combinations of cooker units, ranging from the small domestic models shown, to Esse Major installations cooking for 1,000 persons. Various extras are available, including auxiliary ovens, separately fired water heaters, enamelled bases, etc.

In certain of the models combined flue nozzles are available, thus avoiding a duplication of flue piping. Cookers and water heaters can be lined up to use the same chimney ; the fuel (anthracite) being of small bulk needs little storage space.

Operation, etc. :

For a description of the operation, construction and installation of the cookers, see material on Sheet No. 631. Cooker flues may be turned into new or existing chimneys if free from down draught and if dampers are provided when other flues use the same chimney. All sizes of cooker burn smokeless solid fuel, preferably anthracite of approximately $1\frac{1}{4}'' - \frac{7}{8}''$ size. Where the models are supplied with a water heating unit, this is separately fired and burns either anthracite or coke, as well as combustible waste material. Necessary flue piping is extra.

Esse Fairy Cookers :

Additional fittings available with this model include towel rails, and extension bracket shelves to the top plate which increases the overall width by 10". The heat accumulator hot plate is $13\frac{1}{2}''$ wide by $8\frac{3}{8}''$ deep, and provides rapid boiling. The flue nozzle is fitted with a draught stabilizer, and also, as for all other models, is convertible into either top or back outlet. The cooker is priced at £32, delivered, for either green or blue mottled porcelain enamel finish, and other colours are available at small extra cost. The cooker can be supplied with visible fire water heaters—B.Th.U.s 20,000; capacity of storage cylinder, 25-30 gallons.

Esse Minor Cookers :

This model is available with or without the water heating unit, and is shown in the combined form. The plate rack and back panel can be fitted to either form. The water heater ratings are available in four types, as given below :—

No.	Type	British Thermal Units	Suitable Storage cylinder
1.	Visible fire (with mica panelled fire door) ...	32,000	30/45 gallons
2.	Closed fire (with plain doors and waterway in front) ...	36,000	35/50 gallons
3.	Visible fire (with mica panelled fire door) ...	42,000	40/55 gallons
4.	Closed fire (with plain doors and waterway in front) ...	46,000	45/65 gallons

Water heater connections for Nos. 3 and 4 are as shown on diagram, but rear connections for Nos. 1 and 2 are 4 ins. nearer the front panel.

The heat accumulator or boiling hot plate is $15\frac{3}{4}''$ wide by $8\frac{3}{4}''$ deep. The standard enamel finish is cream, but blue, green or grey in light or medium shades are also available. The cooker only is priced from £49 10s. and the cooker with water heater from £67. Delivery and erection extra.

Premier Esse Cookers :

Two types are shown, type 62 being the cooker only, and type 72 the cooker combined with an auxiliary oven unit. Plate racks and back panels may be fitted to any type. The heat accumulator hot plate of both types is $18\frac{3}{4}''$ wide by $10\frac{1}{4}''$ deep. Water heaters may also be supplied combined with these cookers, and there are three types, as given below. The fires are under separate control.

No.	Type	British Thermal Units	Suitable storage cylinder
5.	Visible fire (with mica panelled fire door) ...	50,000	50/75 gallons
6.	Closed fire (with plain doors and waterway in front) ...	56,000	60/80 gallons
7.	All enclosed (with top feed)	70,000	70/100 gallons

Type 62, cooker only, is priced from £70 and with a water heater from £89. The standard enamel finish is cream, but blue, green or grey in light or medium shades are also supplied. Type 72 is priced at £85. Delivery and erection extra.

Manufacturer : The Esse Cooker Company
(Proprietors : Smith & Wellstood, Ltd.)

Address (Head Office and Works) :
Bonnybridge, Stirlingshire

Telephone : Bonnybridge 111

Showrooms (London Showrooms and Demonstration Kitchens): 63, Conduit Street, W.1 and 11, Ludgate Circus, E.C.4

Telephone : Central 3655

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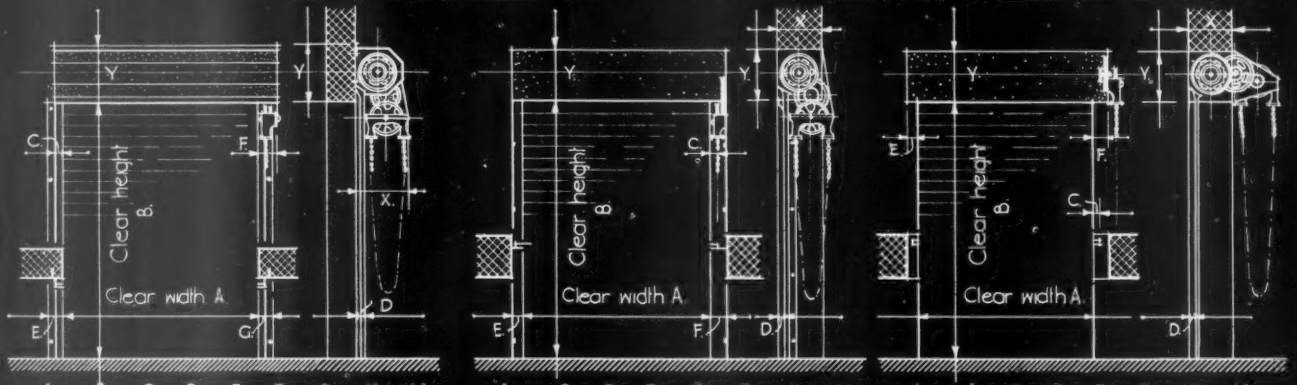
COIL DIAMETERS & WORKING CLEARANCES OF HASKINS · ROLADOR · STEEL ROLLING SHUTTERS:

Any form of shutter may be fitted with detachable or fixed swing type wicket door of slat construction.

PLANS, ELEVATIONS & SECTIONS OF ENDLESS HANDCHAIN OPERATED SHUTTERS (REDUCTION GEARED.)

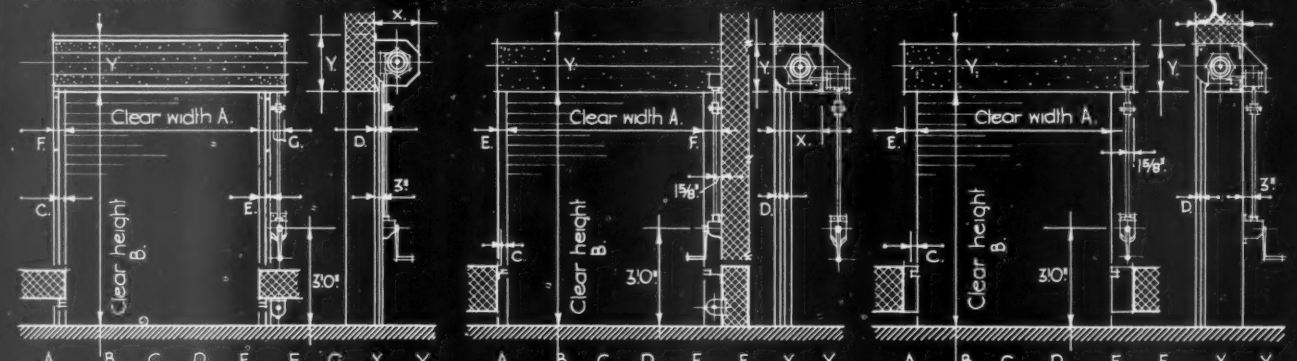


A.	B.	C.	D.	E.	F.	G.	X.	Y.
14'-17'	14'	2½"	2½"	3½"	6"	4¼"	16"	19"
17'-20'	17'	3"	3"	4"	6½"	5¼"	20½"	20½"
20'-22'	20'	4"	3"	5"	7½"	6¼"	20½"	21½"

A.	B.	C.	D.	E.	F.	X.	Y.
14'-17'	14'	2½"	2"	3½"	6"	16"	18"
17'-20'	17'	3"	2½"	4"	6½"	17½"	19½"
20'-22'	20'	4"	2½"	5"	7½"	19"	20½"

A.	B.	C.	D.	E.	F.	X.	Y.
14'-17'	14'	2½"	2"	3½"	6"	16"	18"
17'-20'	17'	3"	2½"	4"	6½"	17½"	19½"
20'-22'	20'	4"	2½"	5"	7½"	19"	20½"

PLANS, ELEVATIONS & SECTIONS OF CRANK-HANDLE OPERATED SHUTTERS: (SPUR & BEVEL GEARED.)

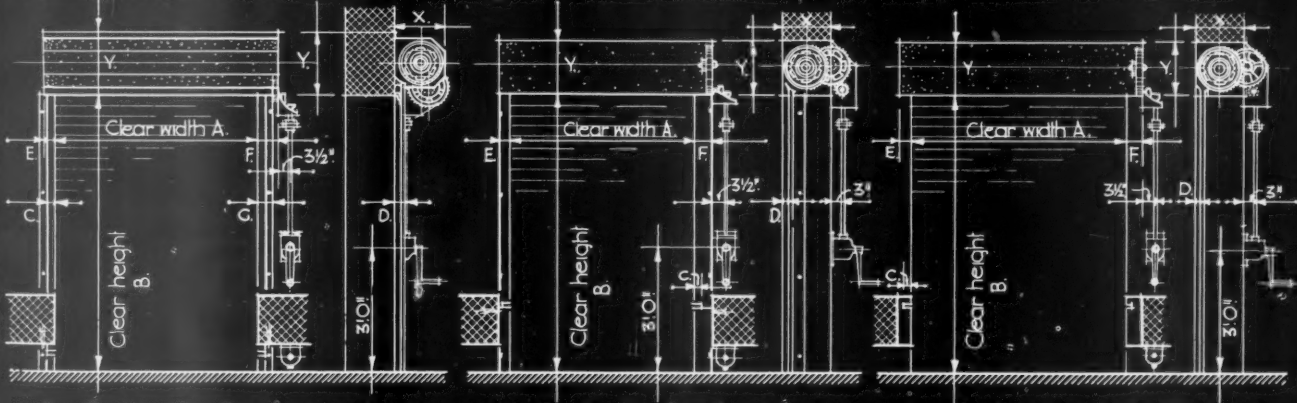


A.	B.	C.	D.	E.	F.	G.	X.	Y.
8'-10'	8'	1½"	2"	3¼"	2½"	7"	15"	17"
10'-12'	11'	2"	2½"	3¾"	3"	7½"	16"	18"
12'-14'	14'	2½"	3"	4¾"	3½"	8"	16½"	19"

A.	B.	C.	D.	E.	F.	X.	Y.
8'-10'	8'	1½"	1½"	2½"	5"	14"	15"
10'-12'	11'	2"	2"	3"	5½"	15"	16"
12'-14'	14'	2½"	2"	3½"	6"	16"	17"

A.	B.	C.	D.	E.	F.	X.	Y.
8'-10'	8'	1½"	1½"	2½"	5"	14"	15"
10'-12'	11'	2"	2"	3"	5½"	15"	16"
12'-14'	14'	2½"	2"	3½"	6"	16"	17"

PLANS, ELEVATIONS & SECTIONS OF CRANK-HANDLE OPERATED SHUTTERS: (REDUCTION GEARED.)



A.	B.	C.	D.	E.	F.	G.	X.	Y.
14'-17'	14'	2½"	2½"	3½"	6"	4¼"	16"	19"
17'-20'	17'	3"	3"	4"	6½"	5¼"	17½"	20½"
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14'-17'	14'	2½"	2"	3½"	6"	16"	18"
17'-20'	17'	3"	2½"	4"	6½"	17½"	19½"
20'-22'	20'	4"	2½"	5"	7½"	19"	20½"

Information from Haskins (E. Pollard & Co. Ltd.)

INFORMATION SHEET: CHAIN & CRANK HANDLE OPERATED ROLADOR STEEL SLAT ROLLING SHUTTERS: N°2.

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

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INFORMATION SHEET
• 636 •
DOORS AND DOOR GEAR

Product : Steel Rolling Shutters

General :
This is the second of two Sheets dealing with Haskins' "Roladors" steel rolling shutters (Patent Nos. 257850 and 200187) and illustrates typical applications and working clearances of some of the hand chain and geared crank-handle operated types. The manual (push-up) operated and electrically operated types of shutter have been dealt with on the first Sheet of this series, No. 632.

Uses :
The shutters are suitable for the protection of almost any type of opening, whether windows or doors, in commercial, industrial, public and domestic buildings.

Types :
Endless hand chain operated shutters
(1) This illustrates the shutter in position fixed on the face of the lintel inside the opening. It is operated mechanically from the inside by endless hand chain spur reduction gear, the mechanism being housed under a steel hood where protection from the weather is necessary.
(2) This type is fixed under the lintel, with the guides nearest the outside of the opening. It is operated from inside directly under the shutter casing.
(3) This type of shutter under the lintel, with the guides nearest the outside of the opening is mechanically operated by endless hand chain from the inside clear of the wall face.
Crank-handle operated shutters
The six types illustrated on this Sheet are the mechanical adaptions of the foregoing types. Operation is by a detachable crank-handle through a spur and bevel or worm reduction winding gear.
The position of the shutter may be as in any of the hand-chain operated types.

Curtain :
The curtain of the shutters is constructed from mild steel strip, 14 or 18 gauge, machine rolled and straightened. The slats have an effective bridge depth of $\frac{7}{8}$ in., and are designed to lie flat against the sides of the guides. To the bottom slat is riveted a heavy tee or angle iron bottom rail. The overall depth or height of the slats varies between $4\frac{7}{8}$ ins. and $8\frac{1}{4}$ ins. according to the height and width of the opening, and the standardized shape is designed to give the greatest possible strength and rigidity to withstand wind pressure. The joints between the slats form continuous hinges throughout their entire length, thus ensuring economical replacement if necessary. Owing to the steady movement and fitting in the guides, end locks to the slats are not required.
Shutters of this kind can be fitted singly in openings up to 50 ft. wide by almost any height.

Springs and Barrels :
All shutters operate on tested high tensile spring steel coils, of the right strength to balance the shutter in all positions. The springs are separately housed in hexagonal steel boxes, and as each is capable of lifting 120 lbs., the appropriate assembly of units enables the heaviest shutter to be raised without effort. A $1\frac{7}{8}$ ins. diameter centre axle of solid drawn steel tubing is provided to carry the boxes on totally enclosed hardened steel roller or ball bearings. In large and all geared shutters the centre axles are reinforced with 10 gauge steel barrels of varying diameters. The centre shaft remains stationary, the spring boxes and outer barrel revolving around it. For small openings push-up, hand-operated shutters of light construction are available with spring assemblies supported on steel axles at each side of the opening. Larger shutters are fitted with a solid shaft and cast hexagon blocks at both ends to house the bearings. Accuracy of balance in this type is obtained by using a combination of three gauges of springs, lifting 50, 60 and 70 lbs. respectively.

Brackets and Bearings :
The spring assembly is supported on mild steel plates of suitable strength, shaped to joist or concrete lintel, or on standard malleable cast iron webbed brackets, with axle supports of malleable cast iron shaped to receive the axle and bolted to brackets. For geared shutters, heavy ball bearings are fitted.
All brackets are fitted with bolts and nuts, patent indented foundation bolts, or suitable caulkings as required for fixing to steel, concrete, brick or woodwork.

Guides :
These consist of mild steel channel or built-up angle iron vertical members at the sides, of sufficient depth to prevent the curtain blowing loose under wind pressure. Guides are complete with continuous angle irons, bolts and nuts, patent indented foundation bolts, lewis bolt caulkings, etc., as required for fixing. Where necessary, double grooved intermediate hinged or removable pilasters separate the shutters in the opening, complete with worm geared hoisting winch, pulleys and wire rope.

Spring Box Casing :
18 gauge D shaped or square sheet steel hoods, or sheet steel facias with necessary stiffeners and ribs, are provided to suit conditions of fixing.

Fastenings :
Shutters operated by endless hand-chain gear are fastened by means of a chain lock and pin. This consists of a malleable iron bracket with a pin attached to it by a small chain, the operating chain being fitted into the bracket and its movement prevented by the insertion of the pin into the bracket This forms an efficient lock and prevents the shutter from being raised from the outside. For outside fastening a similar device is used, but the bracket is specially constructed and the pin arranged to take a padlock.
Shutters operated by hand winding gear can be locked by a self-locking device which operates when the operating handle is removed. When the bottom operating gear-box is fitted into the wall, flush with the wall face, fastening is sometimes effected by a hinged door to the operating box, which is fitted with a lock and keys. A ratchet attachment is fitted to the bottom gear contained in the box.

Installation :
Various methods of installation are possible, as indicated on the Sheet, depending on the type of operation, shutter position in relation to the lintel and the position of the guides, gearing, etc. Push-up manually operated shutters are worked by long arms and hooks, or by lifting rings in the bottom bars according to height. Mechanical endless hand-chain operation incorporates movement through compound spur or worm reduction gear. The chains are galvanized and extend to within 1 ft. 6 ins. of the ground. Locks may be fitted to both types as described above.
The standardization of the components enables the shutters to be erected by semi-skilled labour if necessary, and for this purpose full erection drawings and instructions are supplied.

Ventilation Slots and Louvres :
Ventilation or the admission of light through the shutter curtain can be arranged by the louvres, and these can be spaced at any distance or to any design which avoids weakening of the slats.

Bottom Bars :
Bottom bars can be shaped to conform to road cambers, slopes, kerbs and railway tracks. For openings having a falling ground line, a self-adjusting bottom rail is available to overcome the difficulty of completely closing the opening without the use of a permanently tapered bottom rail. This rail hangs horizontally until it is lowered, and immediately it strikes the ground it tilts on a ball-bearing pivot and assumes the ground slope. On being raised it returns by its own weight to the horizontal.

Finish :
For installations in exposed positions, particularly where there is great humidity or salt atmosphere, it is advisable for the curtain to be hot spelter galvanized. In this process slats, bottom bars and hoods are treated with virgin spelter, and an average deposit of ·004 of an inch is guaranteed. In the galvanizing, shutter slats are first rolled and then immersed in the spelter so that the entire surface is covered.

Delivery and Packing :
Shutters are delivered complete, carriage paid, ready for fixing, to any site in the United Kingdom or packed and delivered ready for shipment f.o.b. London or c.i.f. any port abroad.

Manufacturers : Haskins (E. Pollard & Co., Ltd.)

London Address : Blackhorse Lane, Walthamstow, E. 17
Telephone : Larkswood 2622

Manchester Office : F. W. Hulme, Grosvenor Chambers, 16 Deansgate
Telephone : Blackfriars 7055

Birmingham & Midlands : 51 Bibury Road, Hall Green
Telephone : Birmingham, Springfield 1953

Southampton and District : Berylcote, Castle Lane, Bournemouth
Telephone : Winton 215

Brighton and District : 25 St. Heliers Avenue, Hove
Telephone : Hove 3750

Devon and Cornwall : L. J. Haywood, Waynflete, Barton Road, Torquay

North-East Coast of England : R. H. Campbell, 19 Relton Terrace, Monkseaton, Northumberland
Telephone : Whitley Bay 1854

South Wales : Archibald Sadler & Co., 46 The Parade, Cardiff
Telephone : Cardiff 5209

Scotland : N. B. Carson, 214 West Regent Street, Glasgow
Telephone : Douglas 3877-8

Northern Ireland : R. Cringan Hogarth, 14a Scottish Provident Building, Belfast
Telephone : Belfast 27127

WORKING-CLASS FLATS, MAIDA VALE

D E S I G N E D

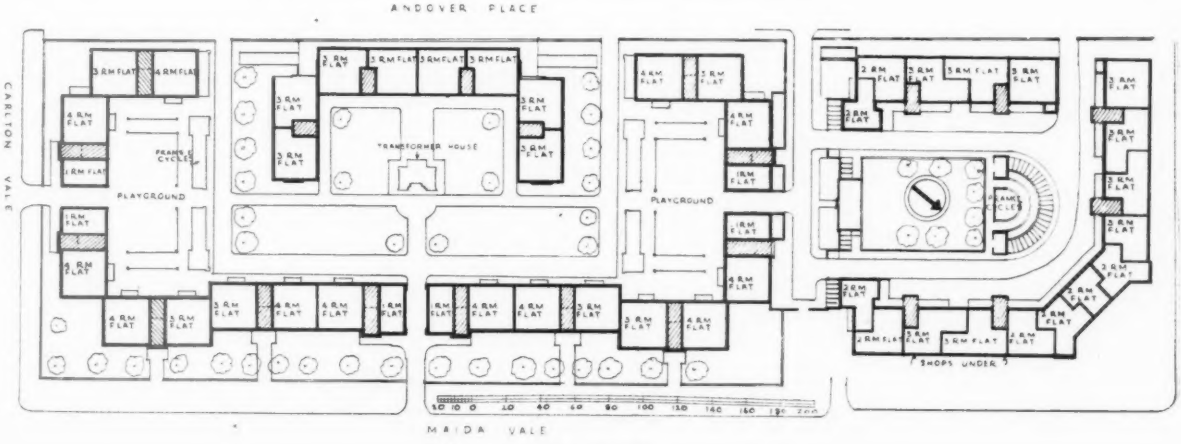
B Y C A R Ö E

A N D P A S S M O R E

REQUIREMENTS—*Housing scheme, for the Ecclesiastical Commissioners, consisting of working-class flats to house approximately 1,000 persons. Accommodation in the flats, 20 per cent. 4-room, 50 per cent. 3-room, 25 per cent. 2-room and 5 per cent. single room, with kitchen and bathroom in each case. Flats to be approached by enclosed staircases and to be provided with separate balconies.*

SITE—*In Maida Vale, adjacent to middle class flats. Desirable to avoid obvious appearance of tenements—hence unbroken elevation screening courtyards. Dwarf walls and grass on the Maida Vale frontage.*

Above, the Maida Vale front.



SITE PLAN

WORKING-CLASS FLATS, MAIDA VALE

PLAN—*The buildings are grouped round two courts, one containing the larger flats, the second the smaller flats, with the system of staircase approach amended for reasons of economy. Shops and accommodation for social facilities are provided on the ground floor of the smaller court. Vehicular circulation, with access from back street.*

CONSTRUCTION—*Solid brick walls. Flat concrete roof covered with laminated roofing with insulating tiles. Solid concrete floors laid with linoleum. Concrete breeze partitions.*

EXTERNAL FINISHES—*Light brown-buff facing bricks with light buff mortar. Metal windows in cast stone frames. Cast stone coping.*

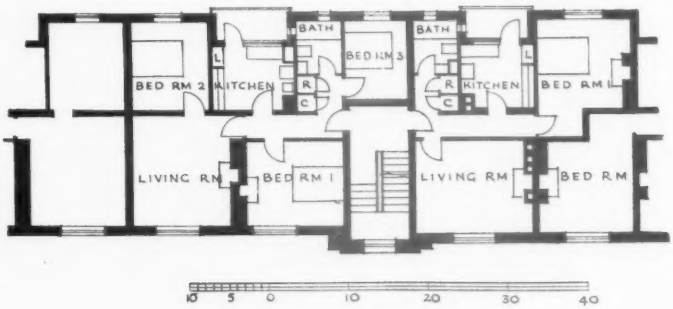
INTERNAL FINISHES—*Gauged lime plaster on walls and ceilings. Skirtings: granolithic. Window boards: tile. Fireplaces: tile. Minimum amount of joinery. Flush doors. Solid door frames. No architraves, picture rails or shelf bearers. Shelves supported on steel bars or brackets built into walls. Dressers, removable for cleaning. Main stairs have dados of polished terrazzo.*

SERVICES—*Coal fireplaces in living rooms and best bedrooms. Gas cookers and boilers. Independent water heating in each flat, the boiler being capable of consuming small refuse. One-pipe system of soil pipes in internal shafts with fittings economically concentrated.*

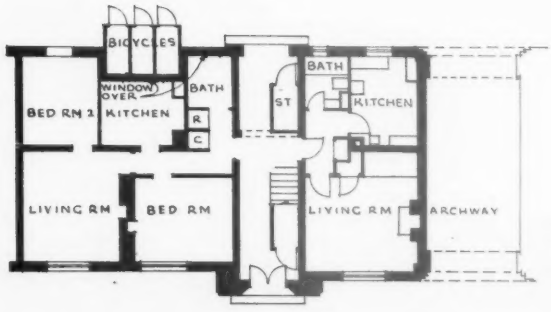
Left, the front to Carlton Vale.

The general contractors were Dove Bros., Ltd. A list of the sub-contractors and suppliers is given on page 1043.

DESIGNED BY CARÖE AND PASSMORE

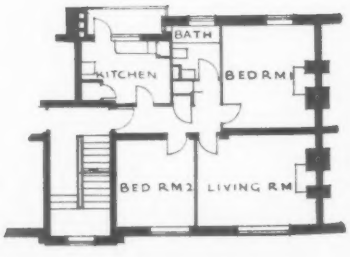


TYPICAL 2- AND 4-ROOM FLATS



1- AND 3-ROOM FLATS ON THE GROUND FLOOR

TYPICAL 3-ROOM FLAT



COMPETITION FOR COLLEGE OF ART, DUNDEE

RESULT—ASSESSOR'S REPORT—WINNER'S REPORT

RESULT

AS announced in last week's issue, Mr. J. R. Leathart, F.R.I.B.A., the assessor of the competition for the Duncan of Jordanstone College of Art proposed to be built on a site in Perth Road, Dundee, has made his award as follows :

Design placed first (£500) : Mr. James Wallace, L.R.I.B.A., of Charlford Highfields, Llandaff.

Design placed second (£250) : Mr. Donald Harrison, A.R.I.B.A., of Park Road, Watford, Herts.

Design placed third (£150) : Messrs. W. A. Mellon and Hubert E. Furse, of Bedford Row, London, W.C.

The designs submitted by the following were commended by the assessor : E. D. Lyons, L. Israel, C. H. Elsom, AA.R.I.B.A., of 3 Paul's Bakehouse Court, London, E.C.4; P. J. Westwood and Sons, of 14 Buckingham Street, Adelphi, London, W.C.2 ; Carr and Howard, AA.R.I.B.A., of 30 Rutland Square, Edinburgh, 1 ; Scott, Shepherd and Breakwell, of 11 Buckingham Street, Strand, London, W.C.2 ; Marshall and Tweedy, FF.R.I.B.A., of 96 New Cavendish Street, Portland Place, London, W.1 ; A. G. Gibson, A.R.I.B.A., of Hoopers, Mayfield, Sussex ; H. John Phillips and Harry Gibberd, AA.R.I.B.A., of 71 Edmund Street, Birmingham, 3 ; L. Hulme Chadwick, A.R.C.A., of 32 Hurlingham Road, London, S.W.6 ; J. D. Cairns and Ford, of 63 George Street, Edinburgh, 2 ; Leslie Grahame-Thomson and Connell, of 6 Ainslie Place, Edinburgh.

The winning design is reproduced on the following two pages.

THE ASSESSOR'S REPORT

I have examined the 73 sets of drawings submitted in this competition, and I have selected therefrom the first three designs.

The most appropriate solution of the planning problem for an art college on a site of the peculiar shape and character of that selected for the proposed new building is, in my opinion, the open type, either in the form of a U, Z, or an L.

A number of schemes have been submitted which conform to one or other of these respective plan-shapes, but, unfortunately, they all possess essential weaknesses in the important factors of aspect or circulation. Further, many of them exceed the prescribed limit of cost by an excessive margin. Essential conditions have been violated in not a few of these otherwise clever schemes, and these additional influences militated against their success in the final choice.

In view of the foregoing circumstances, I have been obliged to select a scheme which, from the essential considerations of aspect, circulation and cost, provides the closest literal interpretation of the conditions of the competition.

This design is numbered 72 (Mr. James Wallace) and I place it first. It is the most efficient of the many enclosed quadrangular type plans submitted. An undesirable feature of this plan which will require careful reconsideration is the inclusion of two very small lighting areas adjoining the south block corridor.

The rear side elevations are lacking in interest and will require to be remodelled in closer conformity with the character of the Perth Road elevation ; at the same time, this main front will be improved by a modification of its mannerisms and by the elimination of the false central accentuation to the attic wall. But for these criticisms, this scheme is competent.

I place second the design No. 36 (Mr. D. Harrison). It is the best of the open type plans submitted, and it has certain points of superiority over the first premiated design, particularly in its position on the site and in its elevational treatment. This scheme fails by reason of imperfections in the planning of the students' entrances and cloakrooms with attendant disadvantages in dispersal to the teaching departments, and chiefly to the fact that its authors have ignored the answer to Question No. 4, which defines the height of the new building along the Hawkhill Place building line.

I place third the design No. 12 (Messrs. W. E. Mellon and H. E. Furse). This is a further good example of the open type plan, but it is unnecessarily grandiose in the planning of the main entrance hall and public approaches, and I am of the opinion that the authors' estimate of cost is inadequate.

The estimated cost of the winning design has been checked in detail by your appointed quantity surveyor, Mr. J. M. Duguid, and I am satisfied that a building erected from this design can be built for the figure of cost computed by him.

THE WINNER'S REPORT

Following are extracts from the winner's report :—

Generally.—After a careful study of the site, and the requirements of the promoters, it was felt that the most satisfactory solution of the problem was to form a complete building for the first portion, with unbroken circulation in a single unit building, with all classrooms facing outwards, leaving the courtyard clear to light corridors and to accommodate the deferred portion later without interfering with the work of the college.

Briefly, the advantages claimed for these arrangements are as follows : (1) Directness and simplicity ; (2) the maximum amount frontage facing north ; (3) the avoidance of placing rooms reliant on lighting from areas ; (4) the reduction of noise by not enclosing the noise-producing workshops in areas ; (5) the fullest advantage has been taken of the ground levels in the planning and in the placing of the buildings to save any excessive excavation or underbuilding. With that in view the floor levels have been carefully considered in relation to the existing ground levels.

Main Building.—The departments fall naturally into two divisions : (I) those requiring north aspect ; and (II) the departments not requiring this light. These have been the main consideration throughout. The south block is set parallel to Perth Road, and is four storeys in height, with a central main entrance hall approached from Perth Road and leading direct to the upper ground floor, and a central corridor running east and west, around which are grouped lecture room, governor's room, college shop, etc. At the extreme ends of this block are the students' entrances, leading direct to the lower ground floor, which is entirely given over to cloakrooms and lavatory space, and so planned to relieve congestion.

Elevation.—The design is on modern lines and allows of a maximum amount of light with an appearance of architectural dignity and fitness for purpose. Reliance has been placed on simple massing without elaborate detail. The building would be faced with sand-faced brickwork of warm colour, with wide joints. There would be stone accentuations to parapets, sills, plinth, jambs of windows, etc., of front block, but limited to parapets and sills of the rear and side blocks.

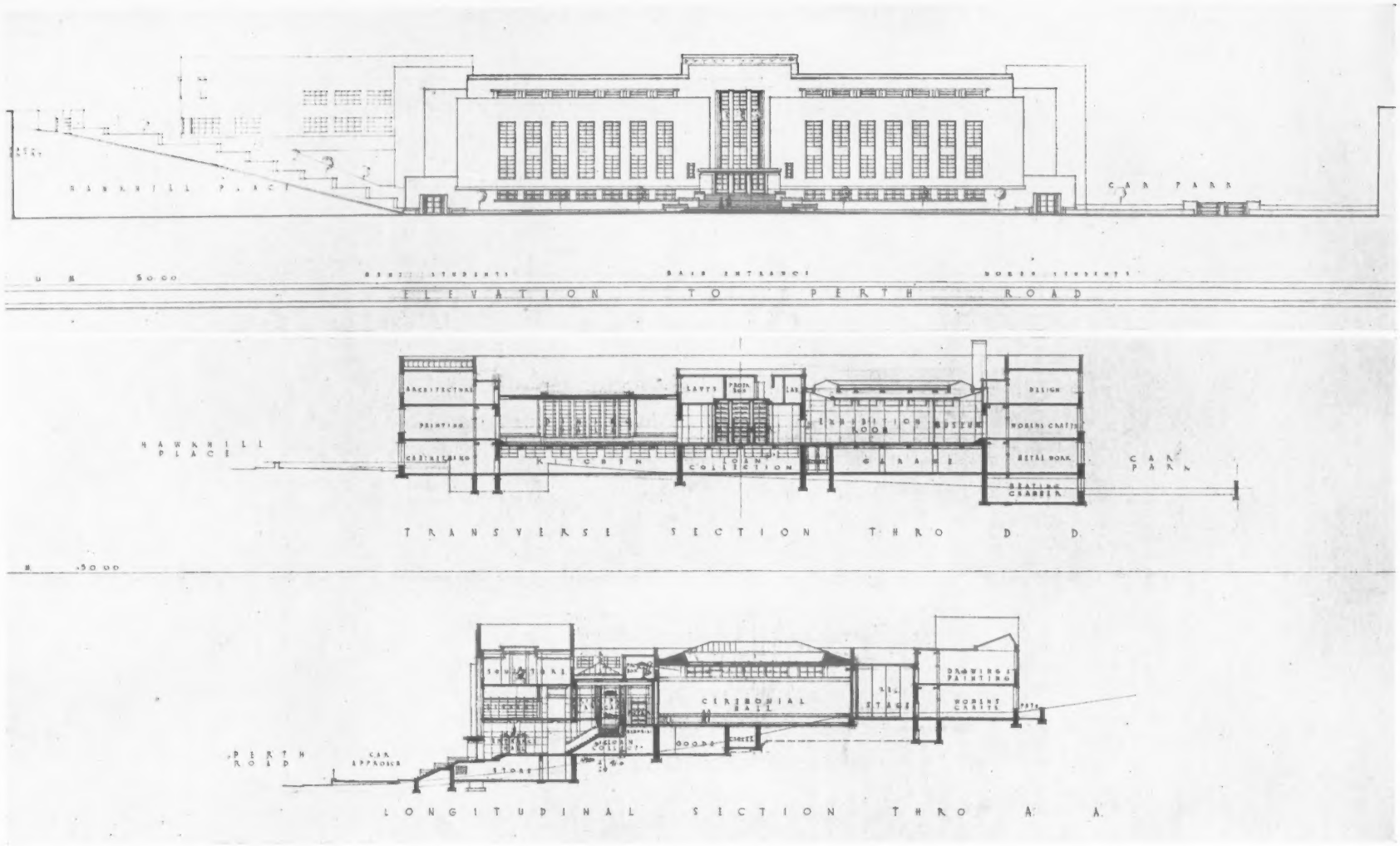
Construction.—Steel-framed, with brick panel walls and partitions, which would be capable of removal and would not carry floor loads, but would allow of elasticity of planning. Floors to be of hollow block construction and staircases of reinforced concrete construction. The floors in the classrooms to be finished in hard-wood blocks and floors of workshops to be finished in grano-paving. Main entrance floors would be large terrazzo tiles, and stair treads in terrazzo and walls of hall and staircase in Manumarble. Walls generally to be finished in plaster. The utmost simplicity of finish would be maintained throughout. Lavatories would have impervious tiled floors and dadoes. All windows would be school pattern, of steel, with maximum opening parts for ventilation and easy cleaning. Roofs of workshops would be the usual type, with slate covering to the flat slopes. The flat roof of the main building would be covered with two layers of asphalt, with an insulating material between the asphalt and concrete. Owing to the hilly nature of the site it is suggested to step the foundations to conform to the varying levels of the ground. Allowance has been made in calculating the price for this work.

Heating.—The heating of the buildings would be on a low-pressure hot-water system, with radiators against the outer walls, and panel heating in the entrance hall and staircase.

Boiler Plant.—The heat would be supplied by two boilers, 8 ft. by 5 ft.; also a domestic boiler for hot water services.

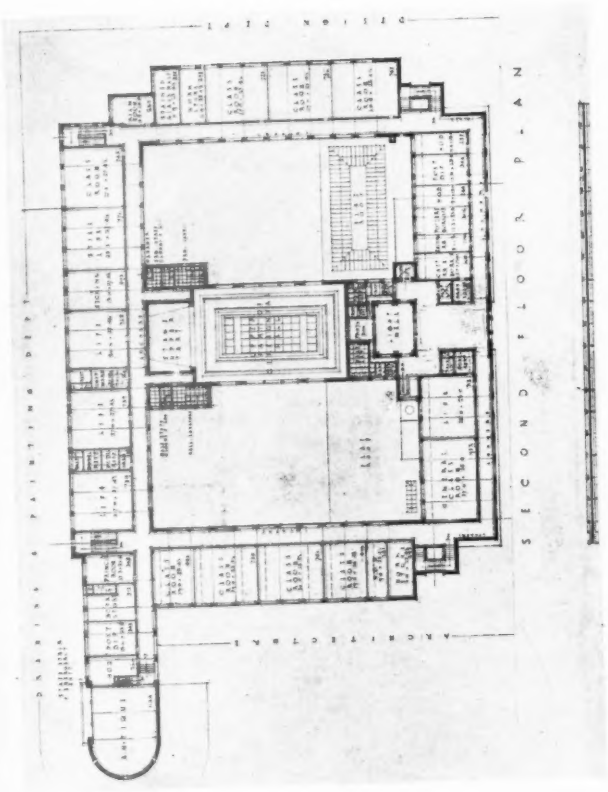
Totals.—South block, 444,927 cu. ft. West block, 149,062 cu. ft. North block, 367,660 cu. ft. East block, 184,407 cu. ft. Total : 1,146,056 cu. ft., which, at 1s. 3d., gives a price of £71,627. The estimated cost for the deferred portion is £14,271—228,350 cu. ft. at 1s. 3d.

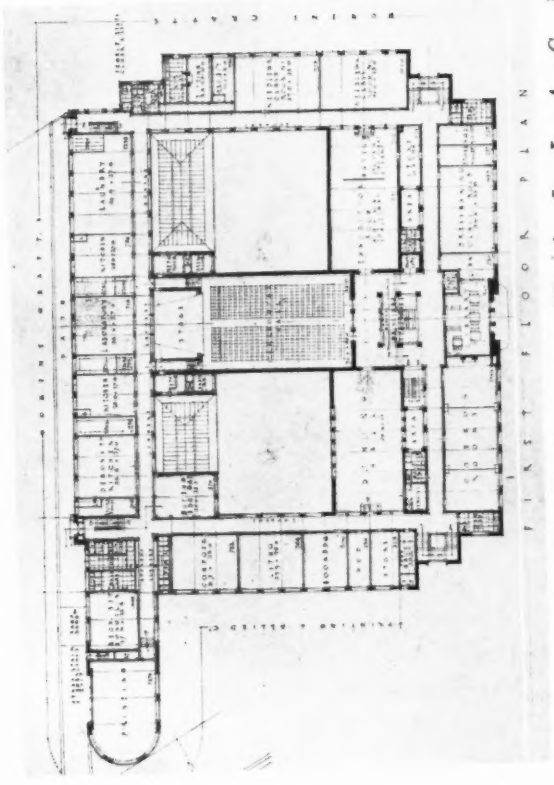
COMPETITION FOR DUNCAN OF JORDANSTONE COLLEGE OF ART, DUNDEE

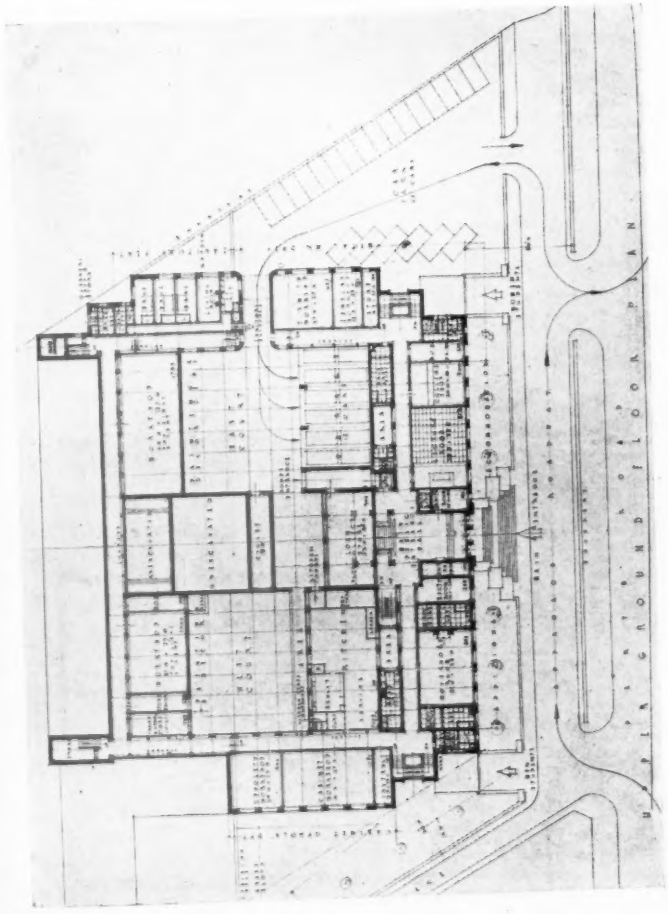


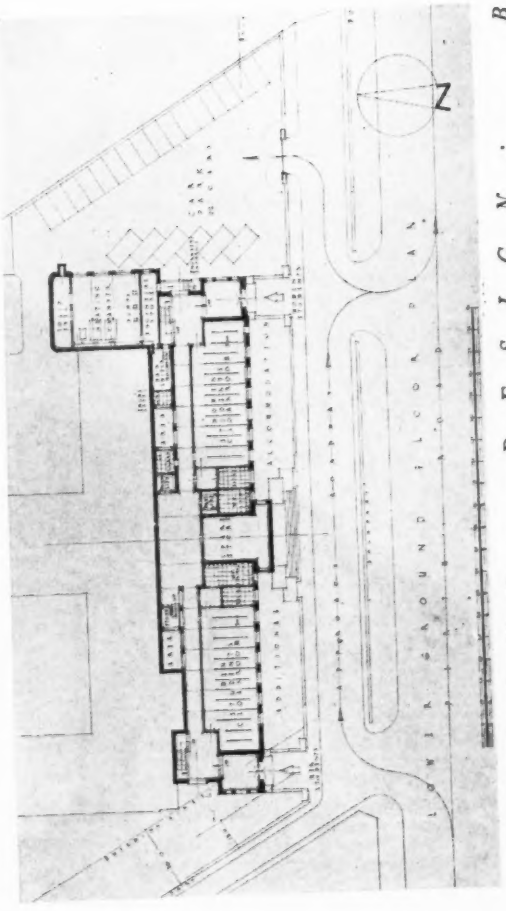
Above, main elevation and sections. Facing page : lower ground, upper ground, first and second floor plans.

WINNING DESIGN: BY JAMES WALLACE

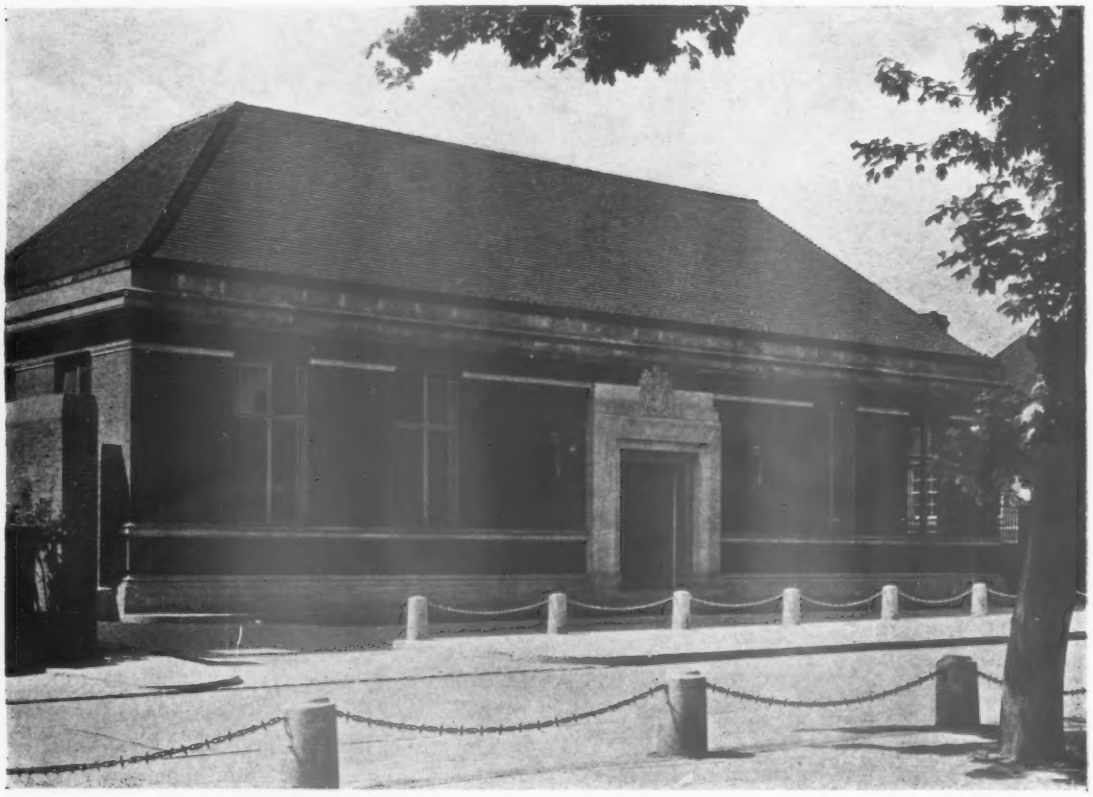


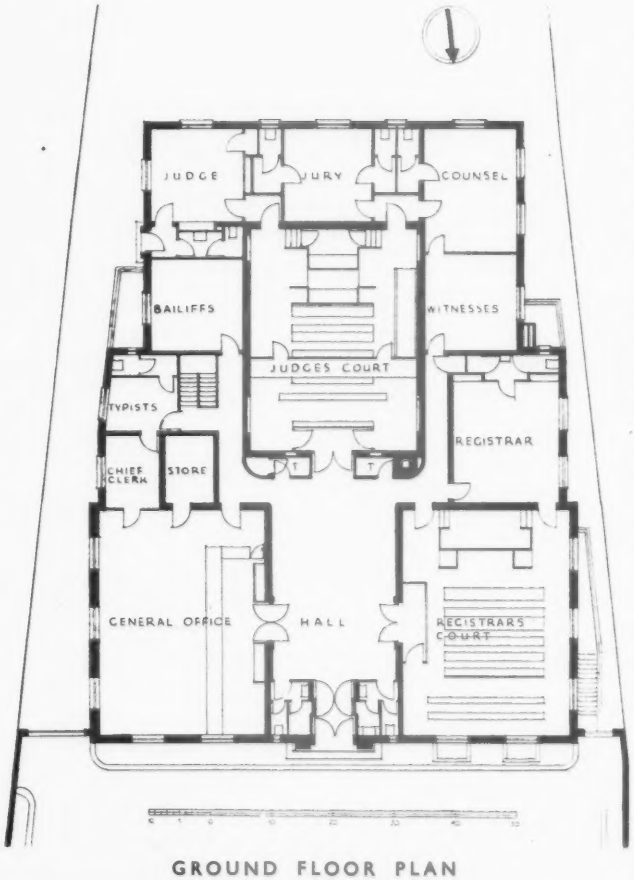






COUNTY COURT, EPSOM: DESIGNED BY





GROUND FLOOR PLAN

GENERAL—*The building has been designed exclusively to meet the requirements of a county court. A large crush hall was required to accommodate the public waiting for a call to the courts. The two courts and the public office all open out of this crush hall, as these are the parts of the building to which the public must have ready access.*

SITE—*The building is situated away from main traffic routes.*

PLAN—*The grouping of the main public rooms around the crush hall has been explained above. This governs the planning. The remaining rooms are placed with regard to convenience of circulation.*

CONSTRUCTION AND EXTERNAL FINISHES—*Walls are structural and built in brick; roofs formed in timber above a concrete deck serving as ceiling, and covered with tiles. The asbestos gutter has a facing of ornamental cast lead.*

INTERNAL FINISHES—*The internal walls in the crush hall are faced in ceramic tiles to top of door height for cleanliness and low maintenance cost. In the courts veneered plywood or block-board is used for the lower part of the walls with plaster above, except where linen-faced felt has been used for acoustic reasons. Court furniture is in hardwood to match the veneered dadoes. The court floor is of rubber laid in tile form; and the crush hall has a hard non-slip tile floor for cleanliness and durability.*

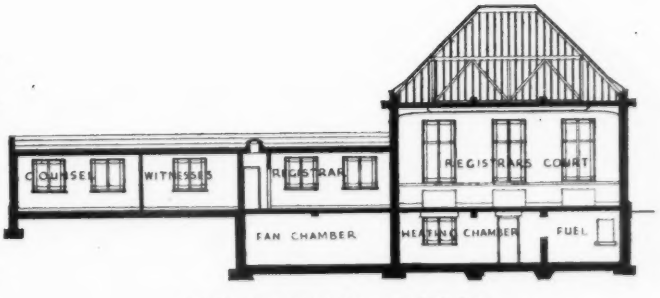
Above, the main front.

JOHN H. MARKHAM (H.M. OFFICE OF WORKS)

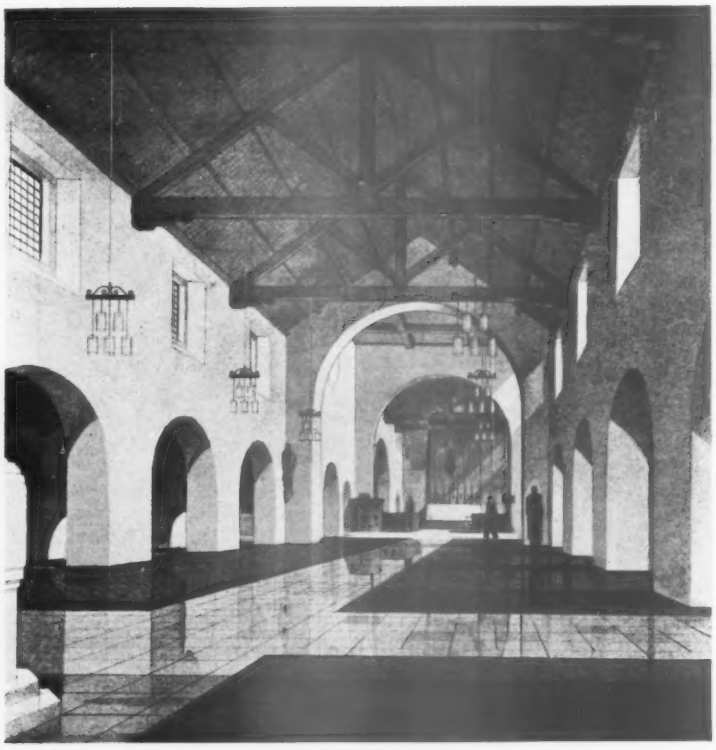
SERVICES—*Heating is by low-pressure hot water. Runs of pipe are concealed as far as possible. In the crush hall they are in floor ducts with slate covers. A complete system of artificial ventilation has been adopted for the courts, the machinery and motors being situated in the roof space.*

Above, the main entrance.

The general contractors were Henry Taylor and Son (Epsom), Ltd. A list of sub-contractors and suppliers is given on page 1043.



LONGITUDINAL SECTION



R.A. Exhibition (No. 1308) : St. Mark's Church, Teddington. By Cyril A. Farey.

LITERATURE

ESSAYS ON THE 17TH CENTURY

[*By DONALD McGAVIN*]

Seventeenth Century Studies : Presented to Sir Herbert Grierson. The Oxford University Press. Humphrey Milford. Price 21s. net.

OF the time since the beginning of the Elizabethan era the seventeenth century is probably that which leaves the vaguest impression on the mind of the average educated man.

Yet here was an age of great interest, a period of transition between the old world and the new, from the medieval outlook to the modern. Even in England, the latest country to be affected by it, the Renaissance was dead when the century opened. Men were digesting, not always easily, the new material they had absorbed and were beginning to cast round for new ways of thought, new methods of expressing themselves. Bacon, in spite of The Advancement, and Donne still showed marks of the medieval mind. Then came Harvey and Newton, with Descartes, with a multitude of others, the rule of authority was challenged on all sides and the century closed with the age of reason already passing out of its infancy.

As one would expect in so unsettled a time there was no lack of variety, and in literature this ranges from the involved style of Sir Thomas Browne to the simplicity of Bunyan or of Herrick. Paradoxically, in an age when revelation was giving way before reason, the century saw a revival of religious poetry after the neglect into which it had fallen during the Renaissance, a revival that added a new style of verse to our tradition. With the advancing years dramatic construction conformed more and more closely to a rigid interpretation of the unities, that was yet resented by many playwrights and not least by those who conformed most closely, as may be discovered in the exquisite prose prefaces of Racine. This is surprising, considering that the teachings of Aristotle were no longer regarded with reverence in other departments of life ; in fact, his writings were in general rather neglected as a reaction from the over-enthusiastic and under-critical admiration too commonly accorded by the previous age.

Here is matter well worth study and here is a volume to review the time. Though not designed as a unit to cover the whole period in every aspect, yet in fact it makes an excellent survey, so that even a reader setting out with a hazy conception of the century may expect to end with a well-filled picture. It is packed with pleasures, some of them recondite and to suit varied tastes. Among the twenty-three essays are three on philosophy, one on architecture, by the President of the R.I.B.A., one on music, and two on drama, while the remainder are concerned mainly with literature. Painting receives attention only in one paper, in which Professor Mario Praz draws a comparison between Poussin and Milton, principally on the grounds of the purity of their classicism. Most would admit that some parallel between these two is just. Both enjoyed the same wide sweep, the clarity, the distance and the view.

That three essays are concerned with Milton will be welcome to those who disagree with the present tendency to write him down as being of inferior worth. In a note on Milton's imagery and rhythm, Mr. Laurence Binyon contributes one of the most delightful studies in the book, rebutting the objection that his visual imagery was deficient and quoting passages to illustrate his point, although he admits that Milton's descriptive powers were more vivid when used on a grand scale rather than on detailed scenes close at hand. Mr. Tillyard gives us more of a discussion that is always interesting, Milton's projected alternatives to "Paradise Lost." The reasons for his rejection of the Arthurian legend and of English history are seen in the Royalist associations of the first, and in the poet's increasing disillusionment with the results of government by the Parliamentary party, with which the second subject had become linked.

Among such a wealth of essays the critic can but mention those which gave particular pleasure. That on Donne and Love Poetry in the Seventeenth Century is vivid and entertaining, full of fire and provocative asides, although some readers will feel that Mr. Lewis has put the case against the poet with an excess of vigour. Professor Legouis has written a most readable article on Corneille and Dryden as Dramatic Critics, while Sir Donald Tovey's on music is all the better for not limiting the discussion too narrowly to the seventeenth century.

An apology for Mr. Hobbes ; a delicate essay on George Herbert ; another on the quarrel between Bentley and Boyle ; a truly interesting and quite unsentimental study of Henry Vaughan and the Theme of Infancy, tracing this back through Dante and the Jewish teaching—this will give an impression of the variety presented.

The book is arranged in a roughly chronological order. It closes with The Turn of the Century, leaving the reader on the threshold of a new age and in an atmosphere utterly different from that of the first study, Bacon and the Defence of Learning.

Professor Dover Wilson has been fortunate in obtaining distinguished collaborators, not only from England, but also from Europe and the United States. They have produced a work

worthy to be offered to Sir Herbert Grierson, and one to be read by all who are interested in the literature and cultural history of the seventeenth century and of this country.

CREATING YOUR BACKGROUND

Furnishing and Re-furnishing. "Country Life" Publication. Price 2s. 6d.

"TELL me where is Fancy bred, Or in the heart, or in the head?"

If you were re-furnishing now how would you set about it? The question of style would undoubtedly crop up first and a decision on this point would mean at least half the problem tackled. Whether it would have been tackled properly is another matter, however. *Country Life* have produced "Furnishing and Re-furnishing" to aid the undecided. A very sound introduction deals with this question of style with much common sense. The only style you should choose is the style appropriate to yourself, just as you buy a car appropriate to your needs. What are your needs? You alone know that. Do you need a three-piece suite or are you contemplating the purchase of another because—well, you've always had a suite? Should it be a bed you are after, what directs your choice? Let use and comfort be your guides, unless it is effect only that you seek.

As is so often the case in publications of this kind, the practical examples that follow do not all bear out the theories of the introduction. Architects are becoming stereotyped in their ideas, perhaps, because there are several things here I'll bet they would never have thought of. There's no holding some of these decorating men. Give them a free hand and it's Hey, Presto! —"Learn something from the theatre in dramatizing your effects, and in hinting at mysteries beyond. How can you do it? With mirrors, with draperies, with wrought iron, with cunningly placed lamps, with bowls of flowers . . ." The illustrations (four in colour) contain ideas for almost everybody and should give anyone food for thought.

What is your choice? Built-in divan fitments? Unit furniture? Or do you prefer Mystery Rooms, twisted ironwork, double-fringed garden umbrellas and satin padded doors to stifle I don't know what? You will find them all here; but, lady, if you must have that Récamier settee do think of the fellow who is going to be invited to sit beside you.

The Bard began this, so he may as well finish:

Let us all ring Fancy's knell;
I'll begin it—Ding, dong, bell.
—Ding, dong, bell.

G. B. H.

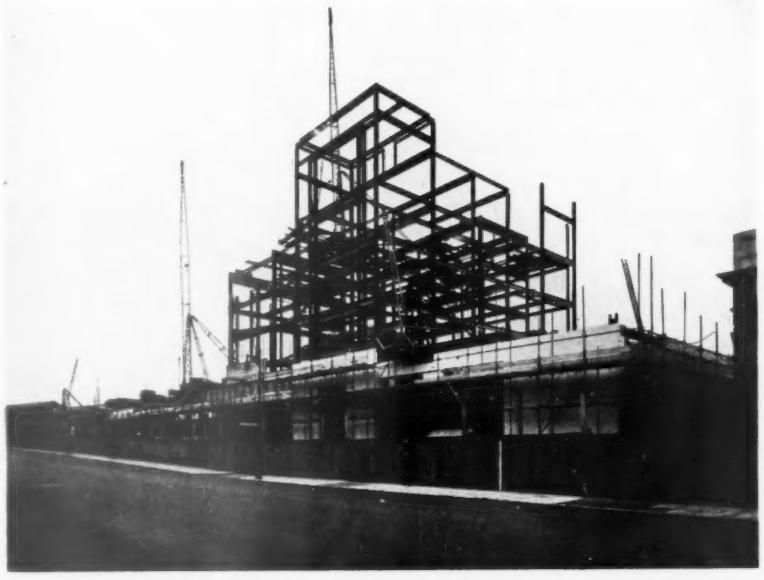
Publications Received

Ventilation, including Air Conditioning. By Percy L. Marks. London: The Technical Press. Price 7s. 6d.

Hobson's Conduit. By W. D. Bushell. Cambridge University Press. Price 6s.

Historic Gardens of England. By Lady Rockley. London: "Country Life." Price 7s. 6d.

Gothic Cathedrals: Paris, Chartres, Amiens and Reims. Described by Paul Clemen. Oxford: B. H. Blackwell, Ltd. Price 18s. 6d.



Progress photograph of the Imperial Airways new Terminal and Head Office Building, Victoria, S.W. Architect, A. Lakeman.

R.I.B.A. CONFERENCE

Following is the programme of the R.I.B.A. Conference to be held at Bristol from June 22 to June 25:—

Headquarters.—The headquarters of the Conference will be at the Victoria Rooms, Bristol. Members should call there as soon as possible on arrival to obtain Conference badges, information, etc., and give their addresses in Bristol if not previously notified.

Wednesday, June 22

8 p.m. to 11 p.m.: An informal reception will be held at the Red Lodge, Bristol. Members will be the guests of the Wessex Society of Architects.

Thursday, June 23

10.15 a.m.: The Conference will assemble at the Victoria Rooms for the Inaugural Meeting. The inaugural address will be delivered by the President, to be followed by short addresses by (*a*) Mr. J. E. Barton, M.A. [HON. A.], Headmaster of Bristol Grammar School, on "Architecture and the Public To-day," and (*b*) Mr. E. Berry Webber [A.] on "The Public Buildings of a Modern City." 12.30 p.m.: Assemble at the Victoria Rooms, where the Conference photograph will be taken.

Lunch: Members of the Conference and their guests will make their own arrangements for lunch. 2.30 p.m. to 6 p.m., *Alternative Visits:* (All coaches will start from the Victoria Rooms, the Conference headquarters, at 2.30 p.m.) *Visit A*, BATH: Tea at the Pump Room. Guide, Mr. Mowbray A. Green (F.). *Visit B*, BRISTOL: Guide, Mr. C. F. W. Dening (F.). *Visit C*, CLIFTON: Guide, Mr. G. D. Gordon Hake (F.). *Visit D*, MESSRS. W. D. & H. O. WILLS'S FACTORY. 8.0 p.m.: Reception given by the Lord Mayor and Lady Mayoress at the Art Gallery, Queen's Road, Bristol.

Friday, June 24

9.30 a.m. to 6 p.m.: *Alternative Whole-day Tours.* (All coaches will start from the Victoria Rooms, the Conference headquarters.).

Tour No. 1: COTSWOLDS. Headquarters—Chipping Sodbury—Petty France—Tetbury—Cirencester—Bibury (lunch at the Swan Hotel)—Coln Valley—Northleach—Birdlip Hill—Painswick—Alveston (tea at the Ship Hotel)—Headquarters. Guides, Mr. H. Stratton Davis (F.) and Mr. H. F. Trew (F.).

Tour No. 2: DUNSTER. Headquarters—Wrington—Langford—Bridgwater—Watchet—Blue Anchor—Dunster (lunch at the Luttrell Arms)—Cleeve (visit Abbey)—Crowcombe—Hestercombe—over the Quantocks to Bridgwater (tea at Maynards)—Headquarters. Guides, Mr. W. J. Stenner (F.) and Mr. R. S. Redwood (A.).

Tour No. 3: WELLS. Headquarters—Dundry—Chew Stoke—Winford—Butcombe—Blagdon—Burrington Combe—Castle of Comfort—Chewton Mendip—Priddy—down Cheddar Gorge to Cheddar (lunch at the Cave Man Hotel)—Wedmore—Meare—Glastonbury—Wells (tea)—over Mendips to Chew Stoke—Dundry—Headquarters. Guides, Mr. G. D. Gordon Hake (F.) and Mr. P. Hartland Thomas (F.).

Tour No. 4: STOURTON. Headquarters—Keynsham—Saltford—Newton St. Loe—Combe Down—Midford—Norton St. Philip—Beckington—Frome—Stourton (lunch at the Spread Eagle Hotel)—Maiden Bradley—Shearwater—Warminster—Trowbridge—Bradford-on-Avon (tea)—Ilford—Freshford—Limpley Stoke—Bath—Headquarters. Guides, Mr. T. W. Snailum (A.) and Mr. R. H. W. Vallis (A.). *Banquet*, 7.30 p.m. for 8 p.m.: Conference Banquet at the Victoria Rooms. The guests will be received by the President of the Institute and the President of the Wessex Society of Architects.

Saturday, June 25

10 a.m. to 1 p.m., *Alternative Visits. Visit* (*a*): Castle Combe. *Visit* (*b*): Burrington Combe and Cheddar. *Visit* (*c*): Cattybrook Brick Works. By invitation of the Cattybrook Brick Co., Ltd.

TRADE NOTES

[*By PHILIP SCHOLBERG*]

Controlling Cattle

FROM time to time one hears of devices for stopping cattle roaming out through open gates, and one occasionally sees photographs of them in papers like *Country Life*. The most usual kind of stop consists of a series of planks on edge laid parallel to each other about three or four inches apart and placed at right angles across the road for several feet on either side of the opening to be protected. Since the tops of the planks are at road level, it is possible to drive cars or ride bicycles through the opening, but cattle apparently mistrust the spaces between the planks and think that the insecure foothold makes it not worth while venturing out. And if anyone has a castle to do for a wealthy manufacturer, I gather that deer feel the same way about these obstructions, so that the ornamental entrance gates can be left permanently open to display the magnificence of the park within. The chief snag about the plank type is that the narrow edge takes all the weight of the traffic and as a result tends to split off, while the gaps between the planks gradually get filled up with mud and leaves until the stop is no longer effective. During a recent tour round the Cotswolds, I came across a more elaborate kind of stop which seemed to have been very thoroughly thought out. Measurements taken on the spot are shown in the sketch on this page, with a couple of photographs to make clear how it all works, so here is an authentic example which is said by the owner to be very good in practice. Instead of planks, galvanized tubes, 2½ ins. diameter, are used, spanning across a concrete box about 10 ins. deep. Additional support is given to the tubes by three R.S.J.s approximately 3 ins. by 3 ins. spanning the length of the stop, and the tubes, as well as being embedded in the concrete side walls, are also held down by three flat strips, one at each side and one down the centre over the middle R.S.J. At first sight the concrete box may seem to be rather deep, but this was probably done deliberately so that it will not get full up with leaves and stones for a good many years. For perfection's sake it is perhaps worth suggesting that two or three bars at one end need not have been embedded in the concrete, but could have been left loose under the fixing strips ; they would then be easily removable and any rubbish could be simply dug out. As it is now, the gaps between the tubes are small, and the removal of rubbish (or even a dropped half-crown) would be almost impossible.

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One final warning. Openings with stops of this kind are not fitted with a gate at all, but every farmer will sooner or later want to get his beasts out. It is therefore necessary to provide an ordinary gate as well next door, even though it may be only seldom used.

Building Research during 1937

The annual report* of the Building Research Board was published last Monday and gives details of a pretty varied year's work. From the architect's point of view, the most important investigations are those dealing with soil mechanics, but the subject is a complicated one, fairly mathematical, and cannot here be dealt with at any great length, so it is best left alone. More immediately practical is the method evolved by the Building Research Station for cleaning stone buildings, particularly old stone which is very liable to damage. Hard brushing and the use of chemicals is a rather brutal form of treatment, and the Station has always recommended the use of plain water only, and it has been found, after experiments carried out with the help of the Office of Works, that a fine misty water spray, if applied long enough, will allow the dirt to be removed with only light brushing. On a Portland stone building in the City, for example, most of the soot and dirt could be removed with ease after spraying for an hour or two, and only on the more heavily encrusted parts was it found advisable to leave the water playing overnight. This on a building which was, in the words of the report, "exceedingly dirty," and covered with the greasy kind of soot with which the City is afflicted. On a Bath stone building it was found that the stone could be brought to a good appearance with light brushing after spraying for one hour, and that after two hours the stone, apart from its weathered appearance, could hardly be distinguished from new work. It is not expected that the same results will be obtained with sandstone because the chemical composition of the surface of weathered sandstone is different from that of weathered limestone. Laboratory experiments have proved disappointing, for even after soaking in water for several months it has proved impossible to clean a block of weathered sandstone except by abrasion of the weathered surface.

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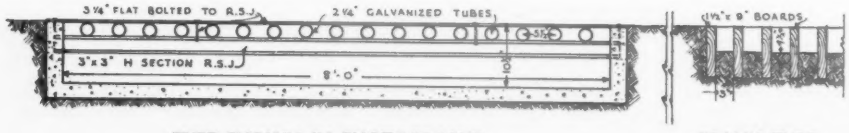
On the job there are one or two mild snags. Tarpaulins, for instance, may have to be used to prevent spray from being blown into the street, and the water may also find its way through windows and their frames. There is also the difficulty that the washing water will run over the pavement below and possibly cause annoyance to pedestrians. With a little ingenuity, however, it might be possible to prevent this. The report adds : "there is certainly no justification for using caustic soda or other harmful chemicals on the plea that their use facilitates the cleaning process or minimises the risk of immediate damage. There is every reason to believe that limestone, however dirty it may be, can be cleaned with ease after spraying for a suitable period, with no more mechanical aid than is

* *The Report of the Building Research Board for* 1937. (London, H.M. Stationery Office. Price 3s. 6d.)



TYPE SHOWN IN PHOTOGRAPHS PLANK TYPE

Sketch and photographs of the method for stopping cattle roaming through open gates, described on this page.

afforded by the use of a soft brush, and even this can be dispensed with if the spraying is continued for long enough. For historic buildings especially, where avoidance of all risk of immediate or subsequent damage to valuable masonry and carvings is the primary consideration, the method has every advantage to commend it. It should not, of course, be used on delicate stone when there is risk that severe frost may occur before the stone has had the opportunity to dry."

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The survey of Continental methods of applying external renderings promised in last year's report has now been carried out. It is noted, first of all, that renderings are invariably thrown on from the trowel, never laid on as is usual in this country, and this procedure, in the opinion of Continental plasterers, makes for good adhesion and uniformity of texture, and reduces the risk of crazing. Modern practice also tends in the direction of rough-textured surface finishes, and the scraping method is widely used. This is considered to have an important bearing on weatherproofness, as a surface which breaks up and distributes the film of water running down the face of the wall tends to prevent penetration. The Karl Marx Hof in Vienna is instanced as a good example where some 250,000 yards of scraped finish remain free from cracks, attractive and fairly clean after seven years' exposure. On the question of materials, it is noted that cement is practically never used as the sole binding material, the usual rendering being a mixture of cement, lime and sand in the approximate proportions of 1 cement to 3 lime to 10 or 12 of well-graded gritty sand. There are also a number of manufacturers who supply the stucco ready mixed, so that nothing more is needed on the site except the addition of water. A detailed report of this tour and the conclusions reached is to be published in the future, and a film was also taken to show the technique of application.

Zinc Propaganda

A month or two ago it was recorded in these Notes that the zinc interests had started an information bureau of their own, following on the example of the copper and the lead industries. The first publication of this association is now ready, and it deals, as one would expect, with the processes of manufacture, properties, and some of the many applications of the metal. All in an introductory way, of course, but the story makes quite interesting reading, and as most people should take an interest in a straightforward attempt to encourage the use of a material which, with proper detailing, can be perfectly satisfactory, it is worth starting at the beginning and finding out something about the material itself. The next book to be published will deal with zinc roofing, and this is already in course of preparation. Copies of all publications will be sent free of charge to anyone interested. —(*The Zinc Development Association, Great Westminster House, Horseferry Road, London, S.W.1.*)

Air-Conditioning Developments

Air-conditioning in all its forms is a speciality of Mellor Bromley of Leicester, who seem to make everything from the independent humidifying unit to the complete central plant with washers, viscous filters, humidifiers, heaters, coolers and all the mechanically operated valves and other trimmings one expects from such systems nowadays. For factories and for many other kinds of building there is much to be said for the zoned system of conditioning, for it enables the right conditions to be applied to different parts of the building if they are used for different purposes, and there may also be quite a considerable saving in operating costs as the external temperature and wind may vary so much on different aspects. One of the main virtues of this firm seems to be that, as they make all types of plant, they are not committed to one particular method, and can therefore put forward the best type of equipment for any job. I notice in their catalogue a suggested layout for a complete air-conditioning plant in a private house, and it would be interesting to know if there are any examples of such a plant in this country. I am not suggesting that such a plant would not be a very good thing, but the mass-produced unit which was supposed to be coming from Chrysler some years ago has not been much heard of, though something on these lines is bound to appear before very long.—(*Mellor, Bromley & Co., Ltd., Minotaur Works, Leicester.*)

R.A. Exhibition (No 1299): Old Brightonian Football Pavilion. By Alliston and Drew. (Drawing: Myerscough-Walker).

THE BUILDINGS ILLUSTRATED

HOUSE AT FAWLEY GREEN, NEAR HENLEY-ON-THAMES (pages 1022–1024). Architect: Christopher Nicholson. The general contractors were R. Mansell and Son. The sub-contractors and suppliers included: Smith Walker, Ltd., reinforced concrete, structural steel; Standard Flat Roofing Co., Ltd., special roofings; Cork Insulation Co., Ltd., stairs, stairtreads; Unity Heating, Ltd., central heating, electric heating; Soapstone Products, Ltd., stoves; Arthur Cozens, Ltd., electric wiring; Oswald Hollmann, Ltd., electric light fixtures; Benham and Sons, Ltd., electric heating; Alfred Goslett & Co., Ltd., sanitary fittings; Dryad Metal Works, Ltd., door furniture, window furniture; Henry Hope and Sons, Ltd., casements; P. C. Henderson, Ltd., sliding doors; Light Steelwork (1925), Ltd., metalwork—balcony balustrade; Clensol, Ltd., water-softening plant.

FLATS, MAIDA VALE (pages 1033–1034). Architects: Messrs. Caröe and Passmore. The general contractors were Dove Bros., Ltd., and the principal sub-contractors and suppliers included: H. Sabey & Co., Ltd., demolition and excavation; Highways Construction, Ltd., asphalt; Blockleys, Ltd., facing bricks; Girling Ferro-Concrete Co., and Croft Granite Co., artificial stone; Leeds Fireclay Co., Ltd., terra-cotta; Dorman, Long & Co., Ltd., structural steel; Roberts Adlard, tiles; Anderson and Son, Ltd., special roofings; Hadfields (Merton), Ltd., waterproofing materials—"Prufit"; Broad & Co., Ltd., grates and mantels; Gas Light and Coke Co., Ltd., gas fixtures and gasfitting; A. Dean & Co., Ltd., electric wiring; Stitson, White & Co., Ltd., plumbing, sanitary fittings and water supply; Yannedis & Co., door furniture; Henry Hope and Son, Ltd., casements and window furniture; W. A. Telling & Co., Ltd., plaster; Clark, Hunt & Co., Ltd., metalwork; Harrison & Co., Ltd., shrubs and trees.

EPSOM COUNTY COURT (pages 1038–1039). Architect: John H. Markham, Office of Works. The general contractors were Henry Taylor and Son (Epsom), Ltd., and the principal sub-contractors and suppliers included: Brookes, Ltd., granite; Measures Bros., Ltd., structural steel; Waddon Concrete Building Material Co., Ltd., tiles; Permanite, Ltd., roofing felt and dampcourses; London Glazing Co., patent glazing; H. C. Goodman, Ltd., central heating; Johnson Tanner, electric wiring; Norman Turner Engineering Co., ventilation; Henry Hope and Sons, Ltd., door furniture; Crittall Manufacturing Co., Ltd., casements; Hill and Smith, gates and railings; Best and Lloyd, lamps; Gardiner, Son & Co., metal grills; Albion Stonework Co., Ltd., stonework; Camden Tile and Mosaic Co., Ltd., tiling; Duncan Tucker (Tottenham), Ltd., office fittings.

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Manufacturers' Item

Some of the recent contracts placed with the Helical Bar and Engineering Works Co., Ltd., are: floors and roofs, etc., synagogue, Sheepcote Street, Birmingham (Architects, Messrs. Josephs); floors and roofs, etc., office block, N.A.A.F.I., Kennington (Architects, Messrs. Josephs); floors, roofs, balconies and stairs, new cinema, Kingston Road, Ewell (Architect, Mr. Norman Bailey); floors and roofs, etc., Royal Berkshire Hospital, Reading (Architects, Collcutt and Hamp); r.c. precast units, Holiday Village Hotel, Clacton (Architects, Montague Evans and Son); roofs, etc., S.O. Warlingham (H.M.O.W.).

CHANGE OF ADDRESS

Mr. R. T. Longden, F.R.I.B.A., M.T.P.I., has changed his private address to "Huntly," Park Avenue, Walstanton, Stoke-on-Trent. Telephone No.: Stoke-on-Trent 7594.

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

PRICES

On the following pages appears Prices of Materials—Part 1, with the prices, last published on May 19, brought up to date.

NOTES ON PRICE CHANGES

There is now practically no change in the prices of joinery timber. Conditions in the steel market are slightly easier.

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

ANSWERS TO QUESTIONS

I should be obliged if your contributors would explain an apparent discrepancy in your "Prices" and "Approximate Estimates."
In the Current Prices—Bricklayer—Part 3—an item, "Labour forming 2-in. cavity to hollow walls," is priced at 9d. per yd. sup., whilst in Approximate Estimates, Part 4, external cavity walls in 11 in. work are priced at various figures all less than 9-in. walls.

The price of 9d. per yard super for forming the cavity to the hollow walls is correct, and the discrepancy in the prices in the Approximate Estimating Section is not due to any variation in this figure. For hollow walls, the facings are in stretcher bond, whereas in the 9-in. walls they are in Flemish bond, which effects a saving of 1s. per yard super. This, together with the cost of forming the cavity, therefore, shows a net saving of 3d. in each case.
The first example of an 11-in. wall should be 19s. 1d. and not 19s. 3d. as shown. This was an error, for which we apologise. We will see that the mistake is rectified in the next issue.

Can you explain your price of £5 7s. 7d. for Columbian Pine flooring? We have recently had an instance of a builder who was prepared to put Pine flooring in at an extra cost of 5s. per square, over deal. Surely this discrepancy is not only in the cost of polishing and the method of jointing.

The price of £5 7s. 7d. is for secret nailed fully desiccated flooring, polished complete. We presume that the pine floor to which you refer can only be an ordinary tongued and grooved B.C. Pine floor, rift sawn, which you will see from our Materials Section we have put in at a price of 7s. 6d. above deal. You will also note there that it is possible to have a Pine floor with random grain at 5s. less than the cost of deal. In order to make this clear in future, we propose including a price for ordinary tongued and grooved Pine flooring in the Prices for Measured Work Section.

THE ARCHITECTS' JOURNAL published a useful schedule of comparative costs for various finishings with their article on shops, some time ago. Many of the finishes do not appear in the Pricing Schedule. Would it be possible for us to have prices for more of these?

THE ARCHITECTS' JOURNAL would have to publish many more pages than it does if the Pricing Schedule were to be made complete. Lack of space prevents us from publishing the prices of many of the finishes contained in the list referred to; also we would like to point out that we have concentrated on work which is generally carried out by the general contractor, as we believe that this work is the most difficult to price. Approximate prices for Specialist's work can usually be obtained quite easily from the Specialist concerned.

We should like to have prices for the cheaper kind of roof covering, such as Ruberoid and also for a built-up roof with two or three thicknesses of Ruberoid or similar material with bitumen between.

Ordinary 3-ply grey Ruberoid fixed by the General Contractor should cost about 31s. 3d. per square, fixed. There are many types of composite roofing varying in character and price. A roofing comprising three layers of flexible waterproof sheeting combined with three layers of mastic and finished with fine Macadam, well rolled, total thickness about 1 in. laid complete, should cost 6s. per yard super.

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

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

★ ***The previous complete Supplement is contained in the issues of the JOURNAL for May 19, May 26, June 2 and June 9.***

Prices vary according to quality and the quantity ordered.

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

PART 1

CURRENT MARKET PRICES OF MATERIALS—I

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

CONCRETOR

Cements

All delivered in paper bags (20 to the ton) free and non-returnable.

		4 Tons and over
Portland	per ton	42/–
Rapid hardening	per ton	48/–
Water repellent	per ton	72/–
Atlas White (1 barrel 376 lbs.)	per barrel	44/–

		1 ton upwards
Colorcrete rapid hardening, Nos. 1 and 2	per ton	69/–
Colorcrete non rapid hardening	per ton	140/– to 300/–
Snowcrete	per ton	175/–

	1–10 cwts.	11–15 cwts.	16–20 cwts.	1 ton and upwards
Ciment Fondu, delivered Central London area (per cwt.)	7/9	7/3	6/–	6/–

Aggregate and Sands (Full Loads)

2″ Unscreened ballast	per yard cube	6/–
¾″ (Down) Washed, crushed and graded shingle	per yard cube	6/2
⅜″ (Down) Ditto	per yard cube	7/6
2″ Broken brick	per yard cube	10/6
¾″ Ditto	per yard cube	11/9
Washed pan breeze	per yard cube	5/3
Coke breeze 1″ to dust	per yard cube	13/6
3/16″ Sharp washed sand	per yard cube	8/3
White Silver Sand for white cement (one ton lots)	per ton	25/–

(For Sands for Bricklaying and Plastering see respective trades)

Pavings

Brick hardcore	per yard cube	2/9
Concrete ditto	per yard cube	3/9
Clean furnace clinker and boiler ashes	per yard cube	3/6
Coarse gravel for paths	per yard cube	6/9
Fine ditto	per yard cube	9/6
Clean granite chippings	per ton	18/6
Red quarry tiles, 6″ × 6″ × 7/8″	per yard super	6/–
Buff ditto, 6″ × 6″ × 7/8″	per yard super	6/6
Hard red paving bricks	per 1,000	150/–

Reinforcement

Basis price for mild steel rods, 5/8″ diameter and upwards, from London stocks	per ton	£15 0 0
Extras for :—		
9/16″ and ½″ diameter	per ton	10/–
7/16″ diameter	per ton	15/–
⅜″ diameter	per ton	20/–
5/16″ diameter	per ton	30/–
¼″ diameter	per ton	40/–
3/16″ diameter	per ton	60/–
Lengths of 40 ft. to 45 ft.	per ton	10/–
Lengths of 45 ft. to 50 ft.	per ton	15/–

CONCRETOR—(*continued*)

Sundries

Retarding liquid, in 5-gallon drums (for exposing aggregate)	per gallon	20/–
Ditto. (for obtaining a bond)	per gallon	12/6

Ex Warehouse, Southwark Bridge. Drums chargeable and credited, if returned.

BRICKLAYER

Common Bricks

Rough stocks	per 1,000	69/6
Third stocks	per 1,000	54/6
Mild stocks	per 1,000	71/6
Sand limes	per 1,000	50/–
* Phorpres pressed Flettons	per 1,000	46/8
* Phorpres keyed Flettons	per 1,000	48/3
Blue Staffordshire wirecuts	per 1,000	165/–
Lingfield engineering wirecuts	per 1,000	95/–
Breeze fixing bricks	per 1,000	57/6
Firebricks, best Stourbridge 2½″	per 1,000	155/–
Firebricks, best Stourbridge 3″	per 1,000	190/–

* At King's Cross. For delivery in W.C. district add 4/3 per 1,000.

Facing and Engineering Bricks

Sand Limes, No. 1	per 1,000	85/–
Sand Limes, No. 2	per 1,000	70/–
*Phorpres rustic Flettons	per 1,000	66/3
Midhurst Whites	per 1,000	75/–
Hard stocks, firsts	per 1,000	97/–
Hard stocks, seconds	per 1,000	89/–
Sand-faced, hand-made reds	per 1,000 from	115/–
Sand-faced, machine-made reds	per 1,000 from	110/–
Red rubbers (9½-in.)	per 1,000	300/–
Hunziker (white)	per 1,000	67/6
Hunziker (creams, light greys, etc.)	per 1,000 from	100/–
Dunbricks (concrete), multi reds, ex works	per 1,000	72/–
Dunbricks (concrete), multi lavender, ex works	per 1,000	75/–
Southwater engineering No. 1 (first quality red pressed)	per 1,000	145/–
Southwater engineering No. 2 (second quality red pressed)	per 1,000	125/–
Blue pressed	per 1,000	174/–

* At King's Cross. For delivery in W.C. district add 4/3 per 1,000.
Discount if accompanied by order for pressed 2/– per 1,000.

CURRENT PRICES

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

BRICKLAYER AND DRAINLAYER

BRICKLAYER—(*continued*)

White, Salt and Coloured Glazed Bricks (9″×4½″×2½″)

The following prices are subject to 2½ per cent. trade discount and 2½ per cent. cash discount, and include delivery to any railway station (minimum 4-ton loads). Add 10/- per 1,000 for delivery in London area.

Prices per 1,000	White, Ivory and Salt Glazed		Buff, Cream and Bronze	Other Colours	All Colours
	Best	Seconds	Best	Best	Seconds
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Stretcher, glazed one side ..	24 0 0	22 0 0	26 0 0	29 10 0	23 0 0
Header, glazed one end	23 10 0	21 10 0	25 10 0	29 0 0	22 10 0
Double stretcher, glazed two sides	32 10 0	30 10 0	34 10 0	38 0 0	31 10 0
Double header, glazed two ends	29 10 0	27 10 0	31 10 0	35 0 0	28 10 0
Quoin, glazed one side and one end	30 10 0	28 10 0	32 10 0	36 0 0	29 10 0

Limes and Sand

		1-ton lots	6-ton lots
Lime, greystone	per ton	43/-	37/6
Lime, chalk	per ton	43/-	37/6
Lime, blue Lias (including paper bags)	per ton	47/-	42/6
Lime, hydrated (including paper bags)	per ton	47/-	42/6
Washed pit sand	per yard cube		7/9

(For cements, *see* "Concretor.")

Hire of jute sacks charged at 1/6 and credited at 1/6. If left, charged at 1/9.

Sundries

Wall ties, self coloured	per cwt.	19/-
Wall ties, galvanized	per cwt.	24/6
Hoop iron, black	per cwt.	25/-
D.P.C. slates, size 18″×9″	per 1,000	157/6
D.P.C. slates, size 14″×4½″	per 1,000	61/3
*Ledkore D.P.C. Grade A	per foot super	5d.
*Ledkore D.P.C. Grade B	per foot super	6½d.
*Ledkore D.P.C. Grade C	per foot super	8d.

* Trade discount 5 per cent. and cash discount 5 per cent. Prices include delivery on minimum of £4 orders.

	9″×3″	9″×6″	9″×9″	12″×9″	14″×9″
Earthenware airbricks: red, blue, vitrified and buff terra cotta each	-/8	1/4	2/4	4/-	6/8

	9″×3″	9″×6″	9″×9″	12″×6″	12″×9″
Black cast iron, School Board pattern airbricks per doz.	3/-	5/6	11/-	11/-	20/-
Galvanized ditto per doz.	5/6	11/-	22/-	22/-	40/-
Black hit and miss cast iron ventilators per doz.	12/-	15/-	21/-	21/-	36/-
Galvanized ditto per doz.	24/-	30/-	42/-	42/-	72/-

	1′ 0″	1′ 6″	2′ 0″	2′ 6″	3′ 6″	5′ 0″
Buff terra cotta chimney pots .. .. each	2/6	3/-	4/4	5/9	13/4	22/6
Fireclay .. per cwt.	4/-					

Wall reinforcement supplied in standard rolls containing 25 yards lin.

2″ wide black japanned	per roll	2/1
2″ wide galvanized ..	per roll	3/2
2½″ wide black japanned	per roll	2/7½
2½″ wide galvanized	per roll	3/10½

Greater widths pro rata 2½″ price carriage paid on orders of £5. Discounts for quantities.

Partitions

		2″	2½″	3″	4″
Breeze ..	per yard super	1/3½	1/5½	1/8	2/3
Clay tiles ..	per yard super	2/3	2/6	2/9	3/1
Pumice ..	per yard super	2/8	3/-	3/6	4/-
Plaster ..	per yard super	2/3	2/9	3/3	4/-

BRICKLAYER—(*continued*)

Shepwood Partition Bricks size 9″ × 2½″ and 2¼″ on bed. Terms, as for Glazed Bricks

Prices per 1,000 except where stated per brick	White, Ivory and Salt Glazed		Buff, Cream and Bronze	Other Colours	All Colours
	Best	Seconds	Best	Best	Seconds
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Double stretcher, glazed two sides	32 10 0	30 10 0	34 10 0	38 0 0	31 10 0
Single stretcher, glazed one side	24 0 0	22 0 0	26 0 0	29 10 0	23 0 0
	Each	Each	Each	Each	Each
Round end glazed two sides and one end ..	-/10½	-/10	1/0½	1/0½	-/10½

Gas Flue Blocks

		Single Flues	Double Flues
Straight blocks	each	1/1	1/11
Building in set	Per set of 3	2/8	4/10
Cover blocks	each	1/5	3/-
Raking blocks 45°	each	2/9	3/11
Raking blocks 60°	each	1/11	2/10
Offset blocks	each	3/4	4/10
Closer blocks	each	1/1	1/11
Closer flashing blocks	each	1/-	1/8
Straight flashing blocks	each	1/-	1/8
Terminal and cap	per set	6/9	11/6
Middle terminal and cap	per set	6/3	10/9
End terminal and cap	per set	6/6	11/3
Corbel block	each	4/10	3/2
Gathering block	each	—	9/8

DRAINLAYER

Agricultural Pipes

		2″	3″	4″	6″
Pipes in 12″ lengths ..	per 1,000	67/6	92/6	120/-	210/-

(Delivered in full loads Central London Area.)

Salt Glazed Stoneware Pipes and Fittings

		4″	6″	9″
Pipes (2′ lengths)	each	1/8	2/6	4/6
Bends, ordinary	each	2/6	3/9	6/9
Single Junctions, 2′ long	each	3/4	5/-	9/-
Yard Gulley, without grating ..	each	6/3	6/10½	11/3
Ordinary 6″ × 6″ Grating, painted ..	each	-/7½	1/3	2/6
Ordinary 6″ × 6″ Grating, galvanized	each	1/0½	2/1	4/4½
Extra for Inlets, horizontal	each	1/6	1/6	1/6
Extra for Inlets, vertical	each	2/3	2/3	2/3
Intercepting Trap with Stanford Stopper	each	17/6	22/6	37/6
Grease and mud interceptor with bucket for removing silt and grease for 6″, 9″ and 12″ drains, with iron grating, painted	each	20/-		
Ditto, with iron grating galvanized	each	21/10½		

The above prices to be varied by the following percentages for the different qualities given. All subject to 2½ per cent. cash discount.

	British Standard	British Standard Tested
Orders for 2 tons and over	Less 20%	Plus 5%
Orders under 2 tons, 100 pieces upwards	Less 2½%	Plus 22½%
Orders under 2 tons, less than 100 pieces	Plus 7½%	Plus 32½%

	Best	Seconds
Orders for 2 tons and over	Less 27½%	Subject to 15%
Orders under 2 tons, 100 pieces upwards	Less 10%	off the price of
Orders under 2 tons, less than 100 pieces	Nett	best quality for all sizes

CURRENT PRICES

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

DRAINLAYER AND MASON

DRAINLAYER—(*continued*)

Cast Iron Drain Pipes and Fittings

Socket and Spigot Pipes :—

Weight (per 9 ft.)	Size.	9 fts.	6 fts.	4 fts. each	3 fts. each
1 . 1 . 8	4″ per yard ..	6/6	7/3	11/7	8/9
1 . 1 . 20	4″ per yard ..	6/9	7/5	11/10	9/–
2 . 0 . 6	6″ per yard ..	10/–	11/11	19/3	15/4
4 . 0 . 2	9″ per yard ..	18/2	23/9	41/3	31/5

Socket and Spigot Pipes :—

Weight (per 9 ft.)	Size.	2 fts.	18 ins.	12 ins.	9 ins.
1 . 1 . 8	4″ each	7/3	6/6	5/8	5/2
1 . 1 . 20	4″ each	7/4	—	—	—
2 . 0 . 6	6″ each	11/6	—	—	—
4 . 0 . 2	9″ each	—	—	—	—

Tonnage Allowances :
Orders up to 2 tons nett.
Orders 2 to 4 tons less 2½%
Orders 4 tons or over less 5%

		4″	6″	9″
Bends	each	6/3	12/10	40/7½
Single junctions	each	11/–	22/–	70/11
Intercepting traps	each	37/6	48/3	137/6
Gulleys ordinary trapped ..	each	15/–	—	—
Extra for inlet 4″..	each	4/3	—	—
Grease Gulley trap	each	117/6	—	—
H.M.O.W. large socket gulley trap with 9″ gulley top and heavy grating and one back inlet ..	each	23/9	42/9	—

Cast Iron Inspection Chambers

The larger figures below refer to the main pipes and the smaller figures to the branches

	4″×4″	6″×4″	6″×6″	9″×6″
Straight chambers with two branches one side .. each	56/3	66/10	78/9	153/9
Straight chambers with three branches in all .. each	66/3	76/10	91/3	166/3
Straight chambers with four branches in all .. each	76/3	87/10	103/9	178/9
Straight chambers with three branches one side .. each	71/3	88/9	101/3	—
Straight chambers with four branches in all .. each	81/3	98/9	113/9	—
Straight chambers with five branches in all .. each	91/3	108/9	126/3	—
Straight chambers with six branches in all .. each	101/3	118/9	138/9	—
Straight chambers with four branches one side .. each	93/9	111/3	133/9	—
Straight chambers with five branches in all .. each	103/9	108/9	146/3	—
Straight chambers with six branches in all .. each	113/9	131/3	158/9	—
Straight chambers with seven branches in all .. each	123/9	141/3	171/3	—
Straight chambers with eight branches in all .. each	133/9	151/3	183/9	—

The branches to the above are at 135°

	4″	6″
Extra for branches between 135° and 180° each	7/6	7/6
Extra for branches between 90° and 135° other than standard angles .. .. each	6/3	6/3

	4″×4″	6″×4″	6″×6″
Curved chambers, no branch 90°–112½° each	26/10	—	38/2
Curved chambers, no branch 135° each	26/10	—	38/2
Curved chambers, one branch 135° each	33/9	48/9	55/–
Curved chambers, two branches 135° each	40/8	65/8	76/3

Channels in White Glazed Ware (Unselected Quality)

		4″	6″	9″
Half round straight channels, 6″ long	each	2/4	3/2	5/3
Half round straight channels, 12″ long	each	3/3	4/5	6/11
Half round straight channels, 18″ long	each	4/–	5/3	8/5
Half round straight channels, 24″ long	each	4/8	6/4	10/6
Half round straight c annels, 30″ long	each	5/10	7/11	13/2
Half round straight channels, 36″ long	each	7/–	9/6	15/9
Half round ordinary or long channel bends	each	8/5	12/11	21/–
Half round ordinary or short channel bends	each	6/–	8/5	—
Three-quarter round ordinary branch bends	each	8/1	11/8	—
Three-quarter round ordinary branch bends, midgets	each	7/3	—	—

		6″×4″	9″×6″
Half round taper channels 24″ long ..	each	7/10	11/3
Half round taper channel bends ..	each	10/3	17/9

These prices are subject to 20% discount.

DRAINLAYER—(*continued*)

Channels in Brown Glazed Ware

		4″	6″	9″
Half round straight channels 24″ long..	each	1/3	1/10½	3/4½
Half round straight channels 30″ long..	each	—	—	4/2½
Ditto, short lengths	each	1/3	1/10½	—
Half round ordinary channel bends ..	each	1/10½	2/9½	5/0½
Ditto, short	each	1/10½	2/9½	—
Ditto, long	each	3/9	5/7½	10/1½
Three-quarter round branch bends ..	each	5/–	7/6	—

		6″×4″	9″×6″
Half round taper channels 24″ long ..	each	3/9	6/9
Half round taper channel bends ..	each	4/8½	8/5½

The above prices are subject to the same discounts as those given for "Best" quality salt glazed stoneware pipes.

Manhole Covers

		Black	Galvanized
24″ × 18″ single seal for foot traffic. (Weight 0.3.0 in lots of 24)	each	12/–	23/3
24″×18″ single seal for light car traffic. (Weight 2 cwt. in lots of 24) ..	each	35/–	61/6
24″×18″ Wood Block pattern. For road traffic. (Weight 3 cwts.)	each	Coated 55/9	

		Fine Cast	Galv.
Cast step irons, 13½″ long, 6″ wide, 9″ in wall, approximate weight 5½ lbs. each	per dozen	12/6	20/6

		4″	6″
Galvanized fresh air inlets, with cast brass fronts (L.C.C. pattern)	each	5/6	20/3

MASON

Yorkstone

Building quality Robin Hood and Woodkirk Blue Stone.

Blocks scrappled, random sizes	per foot cube 4/6
Add for blocks to dimension sizes.. ..	per foot cube 6d. (each dimension)
Templates with sawn beds, edges rough (up to 4 ft. super and not over 2′ 6″ long)	per foot cube 5/–
Templates with sawn beds, sawn one edge	per foot cube 6/–
Templates with sawn beds, sawn two edges	per foot cube 7/–
Prices f.o.r. Yorkshire, railway rate to London Station per ton. (Minimum 6-ton loads.)	18/3

Ancaster Stone

Freestone, random blocks	per foot cube 3/6
Brown weather bed stone selected for polishing all brown blocks	per foot cube 8/–
Brown and blue weather bed stone selected for polishing	per foot cube 7/–

Prices f.o.r. Ancaster, railway rate to London Station approximately 11½d. per foot cube (minimum 6-ton loads).

Bath Stone

Random blocks, delivered railway trucks, Paddington or South Lambeth	per foot cube 2/10½

Portland Stone

Whitbed, in random blocks of 20 feet cube average, delivered railway trucks Nine Elms, South Lambeth or Paddington	per foot cube 4/5
Basebed—add to the above	per foot cube –/3
For every foot over 20 ft. cube average—add	per foot cube –/1
For every foot over 30 ft. cube average—add	per foot cube –/0½

¾″ Thick Plain Marble Wall Linings

Roman Travertine	per foot super 5/–
Golden Travertine	per foot super 6/3
Roman stone	per foot super 4/6
Hopton-wood stone	per foot super 5/–
Second statuary	per foot super 4/6
Sicilian	per foot super 4/–

Artificial Stone

6″×3″	Copings and sills	per foot run	1/6
6″×6″	Copings and sills	per foot run	2/4
9″×3″	Copings and sills	per foot run	2/–
9″×6″	Copings and sills	per foot run	3/4
12″×3″	Copings and sills	per foot run	2/4
12″×6″	Copings and sills	per foot run	3/9

Cornices according to detail, per foot cube (from) 6/9

CURRENT PRICES

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

MASON, SLATER, TILER AND ROOFER, AND CARPENTER

MASON—(*continued*)

Reconstructed Stone to match Natural Stone

Sills, lintols, coping, cornices, ashlar, etc., average size per foot cube	11/-
Window sills, 9″×3″ section .. .. per foot run	2/1
,, ,, 7″×3″ section .. .. per foot run	2/-

Slate Slabs, cut to size and Planed

	1″	1¼″	1½″
Not exceeding 4′ 6″ long or 2′ 3″ wide per foot super	3/1	3/4	3/11
,, ,, 6′ 6″ long or 3′ 3″ wide per foot super	3/9	4/1	4/10
Exceeding 6′ 6″ long or 3′ 3″ wide per foot super	4/1	4/6	5/2
Rubbed faces .. .. ..per foot super	-/5	-/5	-/6
,, edges .. .. .. per foot run	-/4	-/4	-/5

Combined Slate Cills and Window Boards for Metal Windows

Straight Cills: Window Width	Wall thickness 9″	11″	13½″	Circular Cills for C.O.P. Frames: Radius	External reveals 2″	4½″
1′ 8″ ..	4/-	4/8	5/8	2′ 4½″ ..	21/-	24/-
3′ 3½″ ..	7/4	8/7	10/4	2′ 7½″ ..	25/6	28/6
4′ 10½″ ..	10/6	12/3	14/10	2′ 10½″ ..	30/-	33/3

SLATER, TILER AND ROOFER

Best Bangor Slates

	£ s. d.
24″×12″ .. .. per 1,000 actual	33 6 6
22″×12″ .. .. per 1,000 actual	27 19 0
22″×11″ .. .. per 1,000 actual	25 4 9
20″×12″ .. .. per 1,000 actual	24 14 6
20″×10″ .. .. per 1,000 actual	21 15 5
18″×12″ .. .. per 1,000 actual	20 19 3
18″×10″ .. .. per 1,000 actual	17 4 0
18″×9″ .. .. per 1,000 actual	15 11 9
16″×12″ .. .. per 1,000 actual	17 14 9
16″×10″ .. .. per 1,000 actual	15 11 9
16″×9″ .. .. per 1,000 actual	13 19 6
16″×8″ .. .. per 1,000 actual	12 1 11

Prices include for delivery to site in lots of 1,000 and upwards.

Old Delabole Slates (f.o.r.)

Standard sizes.

Prices and computed weights per 1,200.

		20″×12″	16″×10″
Grey medium gradings	per 1,200 cwts.	597/- 46½	366/- 30
Unselected greens (V.M.S.) ..	per 1,200 cwts.	672/- 55⅕	413/- 36

Random sizes.

Prices per ton and computed covering capacities in squares per ton.

		No. 1 Grading 24″/22″ to 12″/10″
Ordinary grey greens	per ton	128/-
Covering cap.:	per ton (3″ lap)	2·37 squares
	per ton (4″ lap)	2·19 squares
		No. 2 Grading 24″/22″ to 12″/10″
Weathering grey greens (V.M.S.)	per ton	139/-
Covering cap.:	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares
		No. 2 Grading 24″/22″ to 12″/10″
Weathering greens (V.M.S.) ..	per ton	149/-
Covering cap.:	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares
		No. 2 Grading 24″/22″ to 12″/10″
Rustic reds (25%) and weathering greens (V.M.S.)	per ton	174/-
Covering cap.:	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares

Railway rate to Nine Elms, London, minimum 4 tons, 21/9, minimum 6 tons per truck, 18/1 per ton.

Tiles

	£ s. d.
Hand-made sandfaced 10½″×6½″ red roofing tiles per 1,000	4 15 0
Machine-made sandfaced 10½″×6½″ red roofing tiles per 1,000	4 0 0
Berkshire rustic pantiles .. .. .. per 1,000	18 10 0

SLATER, TILER AND ROOFER—(*continued*)

Westmorland Green Slates

	Price per ton	Bests, 24″ to 12″ long. Proportionate widths. Computed cover in sq. yds. per ton
Random sizes.		
No. 1 Buttermere fine light green ..	240/-	30
No. 2 ,, light green (coarse grained)	215/-	27–28
No. 5 ,, olive green (coarse grained)	197/-	25–27
No. 5 Medium green	197/-	25–26
No. 7 Elterwater fine light green ..	216/-	27–28
No. 15 Tilberthwaite fine light green ..	214/-	26–28
No. 16 ,, light green (coarse grained)	202/-	25–27

Prices include for delivery to any station, minimum 6-ton truck loads.

Asbestos-cement

6″ corrugated sheets, grey .. .. per yard super	2/11
Standard 3″ corrugated sheets, grey .. .. per yard super	2/7½
Slates :—	
15¾″×7⅞″ grey .. .. per 1,000	£6 16 3
15¾″×15¾″ diagonal, grey .. .. per 1,000	£12 18 6
15¾″×15¾″ diagonal, russet or brindled per 1,000	£16 6 6
Pantiles.	
Large russet brown .. .. per 1,000	£19 8 6

Prices are for minimum two-ton loads.

Cedar Wood Tiles

Canadian cedar wood shingles .. per square 32/- (normal quantity).

Prices include for delivery to nearest railway station in England but vary with quantity.

CARPENTER

Carcassing Timber

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

	Per standard £ s. d.	Per foot cube
4″ ×11″ Scantling	26 10 0	3/2¾
4″ × 9″ ,, ...	26 10 0	3/2¾
3″ ×11″ ,, ...	23 10 0	2/10¼
2″ ×11″ ,, ...	23 10 0	2/10¼
*3″ × 9″ ,, ...	22 0 0	2/8
*2″ × 9″ ,, ...	23 0 0	2/9½
*3″ × 8″ ,, ...	21 10 0	2/7½
2″ × 8″ ,, ...	21 10 0	2/7½
*3″ × 7″ ,, ...	22 0 0	2/8
*2″ × 7″ ,, ...	21 10 0	2/7½
4″ × 6″ ,, ...	24 0 0	2/11
*3″ × 6″ ,, ...	22 0 0	2/8
2″ × 6″ ,, ...	20 0 0	2/5¼
*3″ × 5″ ,, ...	22 0 0	2/8
3″ × 4″ ,, ...	20 0 0	2/5¼
2″ × 5″ ,, ...	19 10 0	2/4½
*2″ × 4″ ,, ...	19 0 0	2/3¾
1½″×11″ ,, (20 ft. lengths and over)	per ft. run	-/5
1½″×9″ ,, (20 ft. lengths and over)	per ft. run	-/4
1½″×7″ ,, (20 ft. lengths and over)	per ft. run	-/2¾

Yellow Deal Battens

*¾″×1″ .. .. per 100 feet run	1/6
¾″×1½″ .. .. per 100 feet run	2/-
¾″×2″ .. .. per 100 feet run	3/3
1″ ×2″ .. .. per 100 feet run	4/6
*1½″×2″ .. .. per 100 feet run	6/-

Weather Boarding

Deal :—	
¾″×¼″×6″ Feather edge .. .. .. per square	12/-
*¾″×¼″×4″ Feather edge .. .. per square	9/-
Western red cedar :—	
*1″×6″ Bevel sidings .. .. .. per square	32/-
*11/16″×5/16″×6″ Feather edge .. .. per square	11/9
¾″×¼″×4″ Feather edge .. .. .. per square	12/6

Roof Boarding

Deal :—	
*½″×6″ .. .. per square	17/6
1″×6″ .. .. per square	22/6

* Items marked thus have fallen since May 19.

TO BE CONTINUED IN NEXT ISSUE