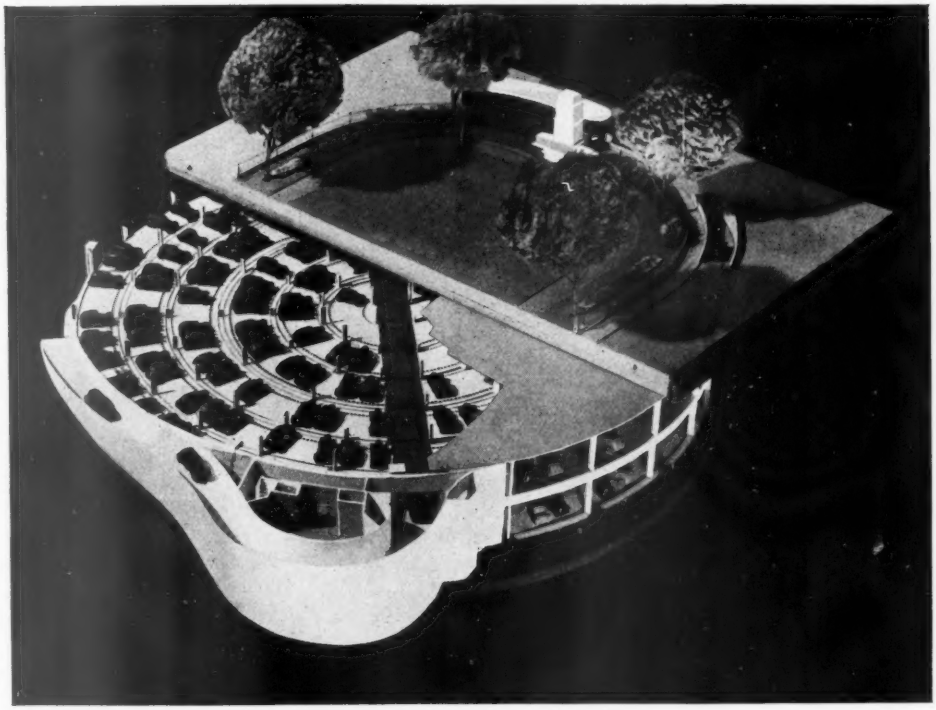
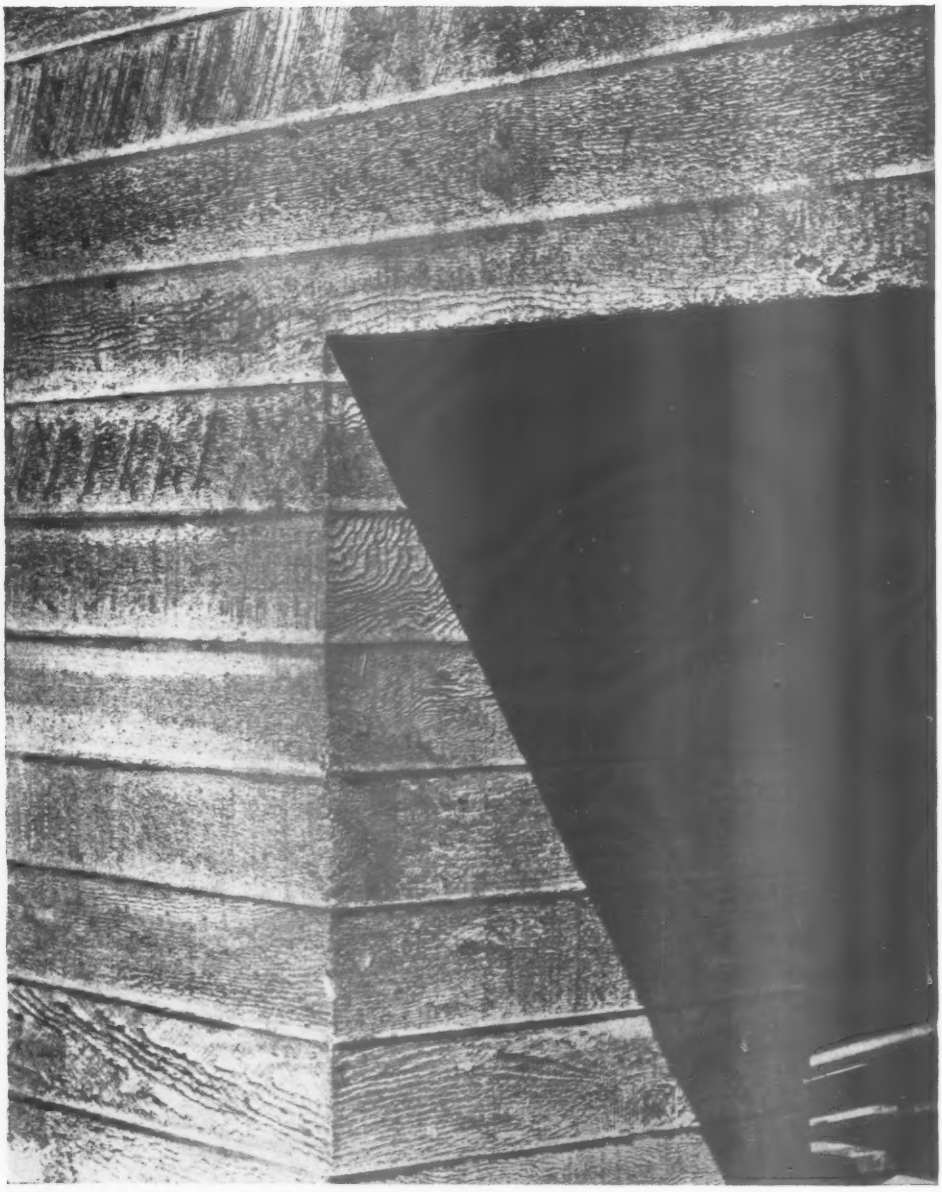
UNDERGROUND PARKING

A ROTARY GARAGE IN HANOVER SQUARE



THE "Pact" system of mechanical car-parking consists of a number of concentric annular platforms, rotating independently upon each floor. The floors are reached by ramps and have an entrance and exit at opposing ends of a diameter. The cars are parked radially and thus the necessary space for manœuvring a car is no greater than the car's width across the several platforms.

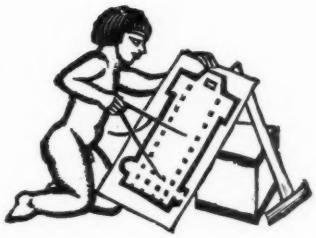
The photograph shows an illustrative section of a fully mechanized two-floored car park designed for Hanover Square by Mr. Sydney Clough. The existing facilities accommodate approximately 80 cars parked at right angles to the pavement, as against the 600 of the proposed garage. Approximately 90 per cent. of the superficial area of the floors is occupied by cars.



TEXTURE

A detail of a doorway opening at the Los Angeles county general hospital. The external reinforced concrete walls of this eighteen-floor building rely for surface texture upon the horizontal banding of the board-marking.

The architects for the hospital are the Allied Architects' Association of Los Angeles.



A VITAL CONFERENCE

ON July 2 there was held at the R.I.B.A a conference of the building and allied industries. Before that meeting, which was summoned by the Building Industries' National Council, we urged that it should be attended by all whose work had any connection with building. Now that the meeting is over it would seem opportune for us to restate the views we have many times expressed concerning the basic objects of the conference.

Although in this restatement we may find a measure of satisfaction, its one intended purpose is that of bringing final conviction to all who may still doubt the importance of the work and progress of B.I.N.C.

As long ago as the summer of 1932 we maintained that the building industry was far too important a part of the country's life to continue much longer at the mercy of an entirely unregulated volume of work. And behind our support of the formation of B.I.N.C. lay the conviction that controlled public works could bring relief to an industry which is continually unstabilised by the sheep-like tendency of private individuals all to build, or to refrain from building, together. At that time the Government's views differed from our own, even concerning immediately necessary public buildings ; and these buildings are now being tendered for at prices enhanced by private building activity.

Again, during the centenary celebrations of the R.I.B.A. we urged that the profession's greatest immediate work might rightly lie in the organization of the industry to avoid the double waste of brief periods of intense demand succeeded by longer periods of slump and unemployment—the silly, pointless see-saw of clumsy retrenchment and makeshift expansion. We were then accused of vague statement, of indulging in a meaningless platform plea for a national plan, unstrengthened by any understanding of what regulation we desired or of how it might be achieved.

To this criticism, often far too well founded amongst reformers, we replied last autumn in a series of articles. We pointed out that boom and depression—uneconomic over-production or panic-stricken retrenchment—are equally harmful. We maintained that foreknowledge of the future volume of activity would make such a chaos avoidable. And since we did not expect anyone to believe this or to act on it we proceeded without support or funds to prepare material for a proper survey. Here, however, B.I.N.C. took up the burden and agreed to take over our preliminary researches.

Within the last few weeks, owing to B.I.N.C.'s hard and admirable work, we have had the satisfaction of seeing some of our contentions acknowledged as valid, both within the industry and beyond it.

And it is in this partial success that there rests the importance of the recent conference of building industries. In his presidential address Mr. Sydney Tatchell touched upon dangers which we would underline. He mentioned the tendency towards self-satisfaction and a short view of an industry momentarily prosperous.

To this we would add that whilst private building developments cannot easily be controlled, public works can ; and that the industry, before expanding its resources to meet intense activity in both these fields, should carefully weigh the future possibility of finding both at a simultaneous standstill. We hold that the first need for the building industries is stability —of volume of work, employment, production and demand. We believe that at the moment this can be achieved only by the regulated alternation of private and public building activity, and by a proper control of the production of building materials.

Today individual firms concerned in building are too busy to try to foresee, still more to try to regulate, the volume of work which will be available for them in two years' time. We do not hesitate to repeat : so much the greater is their need to support an organization which will undertake this " foreseeing " for them.

The Building Industries' National Council is, briefly, in existence for this one purpose. Since its formation in 1932 the building trades, aided by this organization for centralized and collective foresight, have made great progress.

Now is the time to determine that this progress shall be maintained. By its support of B.I.N.C. the industry has the chance not only to sponsor useful research but to protect its interests—a form of protection which, we hope, will be welcomed by those who would ridicule the idea of spending any money on " planning."

The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams
Buildable
Parl
London

NOTES & TOPICS

SIR STEPHEN'S OPPORTUNITY

THE changes in Cabinet posts of last month have brought with them changes in other posts of perhaps greater day-to-day importance.

*

Readers may remember that I suggested, when Sir Kingsley Wood left the Post Office for the Ministry of Health, that he might bring with him his Public Relations Officer, Sir Stephen Tallents. Sir Stephen, it is now announced, *has* been given new fields in which to exercise his genius ; though not the ones I anticipated.

*

He is to go to the B.B.C.—also as Public Relations Officer. " His position," in the rather uncertain English of the *Evening Standard*, " will be similar to that he occupied at the Post Office."

*

A semi-Government Department, semi-Public Body, education-cum-entertainment corporation like the B.B.C. will be a far harder affair to " project " than the simple Government service he has been used to. There is far more to do there than mainly to *interest* the public.

*

I am sure he can be relied on not to admit the B.B.C. to the category of Government Department in the sense of allowing it to be a vehicle for the very complacent self-congratulation that has been the National Government's recent idea of publicity.

*

As I see it, the two extremes of the B.B.C. are important enough to be able steadfastly to ignore official (I don't mean party) conservatism on the one hand and cranky interference by the always vocal minority on the other.

DILIGENT AUTHORITY

Speaking of cranks, he might persuade the B.B.C. to organize an educational broadcast to York.

*

The *Yorkshire Evening Post* one day last week had a leading article inspired by a recent speech by the Earl of Harewood, in which he spoke about architectural freaks. The article was entitled "Freak Architecture" and concluded with the following charming paragraph.

*

" We may express the hope that having reached the Council house style of architecture they (the architects) will not be induced to elaborate these designs after the manner we have recently seen suggested and illustrated. An attempt was made a short time ago to introduce flat-roofed houses into a suburb of York. It did not succeed, and it is hoped that those in authority will be equally diligent in future in preventing anything of the sort."

THE ARCHITECT'S FIRST JOB . . . .

At least once a year, for many years, I have travelled through the undulating acres of an English county which to every Cockney is included in " The North " but which is disowned by every real northcountryman, and every time I have passed my first job—a small country house.

*

I approached the wretched building again this last week-end and, as usual, was about to direct my companion's attention to the opposite landscape, when, rounding the sharp corner at the crest of the little hill, an unfamiliar ruin burst into view.

*

Gone were the quaintly stepped gables which followed my first (and last) participation in one of Mr. Cook's tours, gone were the painted window shutters with flapdoodles on the hinges which my textbook (an art school prize) applauded as real craftsmanship—there remained only the jagged outline of the brickwork, its ugly English bond (used because the same book said it was " the best ") scarcely recognizable under scars of smoke and grime.

*

The place had been burnt to the ground.

*

I felt a peculiar sense of elation. Never again would the passage of that lane envelop me with shame ; never again would that hideous plan, that flaunting elevation, remind me of the pitiful conceits of immaturity, of impetuous studentship.

*

I stopped the car and with a grand sweep of the arm bade my passenger cast her eyes over the blackened ruins. " That," I cried for the first time, " that was my very first job." And in the ensuing silence I swelled with a most ridiculous pride.

. . . . AND THE CLIENT'S

Every architect has at least one client who knows everything there is to know about building (and says so), but a

A progress photograph of the League of Nation's building, now nearing completion at Geneva.

friend of mine reports another human weakling—the man (retired Army, I understand) who disdains any knowledge of trumpery building but who acclaims his command, his knowledge, his . . . er . . . ways with Men (a capital M, please).

*

Everything went fairly well until the house had been completed. True, there had been a few mild explosions and references to what had been done in the Sudan or in India, where apparently there had been no nonsense at all. But when the reparation of maintenance items fell due, the commanding client, then six-months' resident in the new house, took charge of the repairing squadron—an improving joiner and a diminutive electrician (with a painter to follow).

*

All went well until the joiner began to take up two first-floor boards to get at some faulty wiring. His methods were not approved . . . . he was commanded to pull himself together, to use his brains, not-to-be-a-fool-sir, to do it like this . . . .

*

When six floor boards had been unnecessarily reduced to matchwood, the electrician bent to work and was about to complete the job when a roar of command told him that there was going to be no more carelessness on this job, that the house ought to have been finished months ago, that no impertinence would be stood and that, by gad, men had been shot for less than this . . . whereupon the terrified electrician took one unfortunate step backwards and left a gaping hole in the plaster ceiling of the dining room below.

*

The following day my architect friend says he received a letter from his client (from some remote country address) complaining that a careless electrician had almost ruined a very valuable dining table . . . which would have to be put right.

PUBLIC SERVICE . . . AT HUDDERSFIELD

A week or so ago I commented upon the advertisement for a qualified architectural assistant in connection with the Town Hall extensions at Torquay. The Borough Surveyor, quite rightly, writes to ask me what I meant.

*

The answer comes this week from Huddersfield, where the proposal to establish a borough architect's department to cope reasonably with a "tremendous building programme" was defeated by one vote, though twenty-six members voted in its favour.

*

Enlightened local opinion, through the local Press, points out that "Huddersfield has always been retrograde with regard to any matter connected with architecture" and that the architectural views of the authorities are "far below those of a large proportion of the community."

*

In spite of the Huddersfield decision, it seems to me a very reasonable view that while works of engineering are best done by the engineer, the public will get better value for money if works of architecture are done by the fully trained and qualified architect . . . on his own responsibility.

NOISE IN POMPEII

In these days when anti-noise is in the air, several writers, including a leader writer in *The Times*, are taking consolation in the discomforts of the past. The cobblestones of Pompeii, they point out, are so deeply rutted by chariot wheels that the eruption of Vesuvius must have given relief at least from street noises.

*

A very pretty thought, to be sure, but quite an untrue one, for Pompeii had a plan. The majority of its houses were *planned* against street noises; blank walls and unimportant rooms faced the street, the important rooms faced an internal garden court. Even the richest inhabitant, covering an island site with his single house, surrounded himself with an insulating belt of shops and stores.

*

Pompeii indeed was a city of insulated "insulæ."

LOOKING AHEAD

It now seems many years since this JOURNAL first suggested that the degree of activity amongst the building industries at any given time might perhaps be foretold and even regulated. Actually, it was less than three years ago.

*

Of course the idea was scoffed at. The natural and inevitable state of the building trades was, one gathered, either that of complete standstill or scurrying overtime. Nevertheless, the idea was pursued, and eventually taken up by the Building Industries' National Council.

*

Various reports have been published demolishing the false economy of restricting building during periods of slump and urging the development of a long-term policy of public works, not to mention the Building Industries Survey.

*

At the B.I.N.C. Conference on July 2, the progress of a good idea, developed by the right people, was plain to all who were interested enough to be there to hear. Foreknowledge is already available to the industry, and a policy for stabilizing the volume of building activity has been put forward. Only support—real support—from all the trades and manufacturers concerned is lacking for the complete success—of common sense.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

THE ARCHITECTS' DIARY

Thursday, July 11

LEEDS SCHOOL OF ARCHITECTURE. *Annual Exhibition of Work by Students. At the Leeds City Art Gallery. Until July 13.*

LIVERPOOL SCHOOL OF ARCHITECTURE. *Annual Exhibition of the Work of Students of the School. In the Leverhulme Building. Until July 27.*

Friday, July 12

TOWN PLANNING INSTITUTE. *A General Meeting to be held at Caxton Hall, Caxton Street, Westminster, at 6 p.m. Sir Raymond Unwin, PP.R.I.B.A., will read a paper entitled "Urban Development—The Pattern and the Background."*

Saturday, July 13

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Parish Church, Quebec House and other houses of interest in Westerham, Kent. Guide: Mr. Granville E. Streatfield, F.R.I.B.A., Meet at the Church.* 2.30 *p.m.*

Monday, July 15

THE ROYAL SANITARY INSTITUTE HEALTH EXHIBITION. *At Bournemouth. Open daily 11.30 a.m. to 9 p.m. Until Saturday, July 20. Inaugural Address by the Right Hon. the Earl of Malmesbury, D.L., J.P., in the Town Hall.* 3 *p.m.*

SIXTH INTERNATIONAL CONGRESS FOR SCIENTIFIC MANAGEMENT. *Central Hall. To be opened by H.M. the Prince of Wales, K.G.* 12 *noon.*

ARCHITECTS AND TECHNICIANS ORGANISATION. *An Open Meeting at Friends' House, Euston Road, at 8 p.m., on Modern Building Methods and their Effects on Architects, Technicians and Operatives.*

ARCHITECTURAL ASSOCIATION. *A special General Meeting to consider the proposed alteration of the Bye-Laws of the Association.* 6.30 *p.m.*

B.I.N.C. CONFERENCE

Mr. Sydney Tatchell, the president, in his opening address at the meeting held at the R.I.B.A. on July 2 said: "The committee realize that the industry owes a debt of gratitude to those representatives who formed the initial conference convened in 1932 and especially to those who, by subscribing to the fund, enabled the committee to function. A policy of action to bring about a progressive improvement in the economic fortunes of the industry was developed by the committee and vigorously pursued. The underlying principle of that policy was that, whatever was said or done, it was so said or done on behalf of the industry as a whole, in an impartial capacity as between sectional interests, and having for its objective the economic and social well-being of the entire industry and the community at large.

"Since the inauguration of the Council the total turnover of the building industries has probably increased by at least £100,000,000. It is a demonstrable fact that recovery in this country has been associated with building development. Expenditure on building stimulates not only the allied trades but also, since no less than 80 per cent. of such expenditure is ultimately paid out in wages, all those trades which cater for the needs of the bulk of the population. Recent increases in retail trade and internal transport are traceable to increased building, whether directly or through the increased circulation of money which it brings about and statistical evidence may be adduced of the consequent improvement in other industries."

The following also spoke: Sir Raymond Unwin, Mr. H. M. Robertson, Sir Frederick Minter, Lt.-Col. C. W. D. Rowe, Mr. F. G. Foster, Mr. F. W. Stratton, and a resolution expressing approval of the Council's proposal to appeal for funds was unanimously adopted.

INTERNATIONAL REUNION OF ARCHITECTS

Formed "to promote good fellowship and the interchange of views between architects of different nationalities," the International Reunion of Architects was founded in 1931, since when two re-unions have been held—in Moscow and in Milan. The subject for this year's reunion will be "The Evolution of National Architectures," and a European tour has been arranged covering Brussels, Prague, Brno, Budapest, Vienna and Stuttgart, leaving London on September 4 and returning on the 22nd. The cost is 32 guineas, and further information of the meetings and visits can be obtained from Mr. E. Goldfinger, c/o the R.I.B.A., 66 Portland Place, W.1.

HONORARY DEGREE FOR DIRECTOR OF HOUSING

Liverpool University has conferred the honorary degree of Master of Architecture upon Mr. L. H. Keay, F.R.I.B.A., Director of Housing for Liverpool, in recognition of his work on recent municipal housing schemes and slum clearance.

NEW ARCHITECTS' ADVISORY PANEL

An architectural advisory panel has been formed for the Cleveland area following a conference between the committee of the Cleveland Branch of the Council for the Preservation of Rural England and representatives of the Tees-side Branch of the Northern Architectural Association.

The object of the conference was to secure effective means of co-operation which will enable the destruction of the beauties of the Cleveland district by unsightly buildings to be combated. Mr. Arthur Harrison, honorary secretary of the Tees-side Branch of the Northern Architectural Association, and other local architects attended the conference, as well as the town-planning officers of the North Riding County Council, the South Tees-side Joint Town-Planning Committee, and the Borough Engineer of Middlesbrough.

The advisory panel will be available for consultation with local authorities, who, it is hoped, will make use of the panel's services.

TOO MANY HOUSES

The "serious dangers of overbuilding" were pointed out last week by Mr. H. H. Robinson in his presidential address at Belfast to the annual provincial meeting of the Auctioneers' and Estate Agents' Institute of the United Kingdom.

"I feel it is my duty," he said, "to call attention to the increasing rate at which houses are being built in England and Wales. A Government report on housing statistics in connection with the census of 1931 estimated that in the period of six and a half years ending March 31, 1941, a further 900,000 houses will be required to meet all the needs of the country.

"This is equivalent to 138,400 houses a year. When it is realized that 321,584 houses were built in the year ending March 31, 1935, and 266,622 in the preceding year, it will be seen that the present rate of building will need to be checked if disastrous results are to be avoided."

Mr. Robinson added that the prevention of overbuilding was in the hands of the building societies, and that they would be wise to confine further building to a reasonable limit in order to avoid the grave menace of a serious slump in values which would affect millions of owners.

PROPOSED TOWN HALL AT READING

A scheme for providing a new Town Hall for Reading is under consideration by the Town Council. In addition to a Town Hall the building would comprise municipal offices, library, museum and art gallery.

The present building, opened in 1875, is said to be inadequate.

It is suggested that the new civic centre should be in a meadow facing the River Thames.

BOURNEMOUTH AERODROME

Bournemouth and Poole Corporations have decided, subject to the approval of the Air Ministry and the Ministry of Health, to purchase jointly approximately 150 acres of land near Bear Cross, just outside the Bournemouth boundary, in the neighbourhood of Canford, Dorset, for a municipal aerodrome. The site now chosen by Bournemouth and Poole Corporations is in the district known as Moortown, abutting on the main road from Bournemouth to Wimborne.

A ONE-STUDENT EXHIBITION

Typical work done by Mr. J. R. Sheriden-Shedden, a student of the Welsh School of Architecture, during his five years' course of study at the college, formed a special

exhibition at the Technical College, Cardiff, on Thursday.

By gaining the diploma of the college (in architecture, with distinction in thesis and in design) Mr. Sheriden-Shedden has qualified for exemption from the final examination for the associateship of the Royal Institute of British Architects and for registration as an architect.

The exhibition was arranged by the South Wales Institute of Architects.

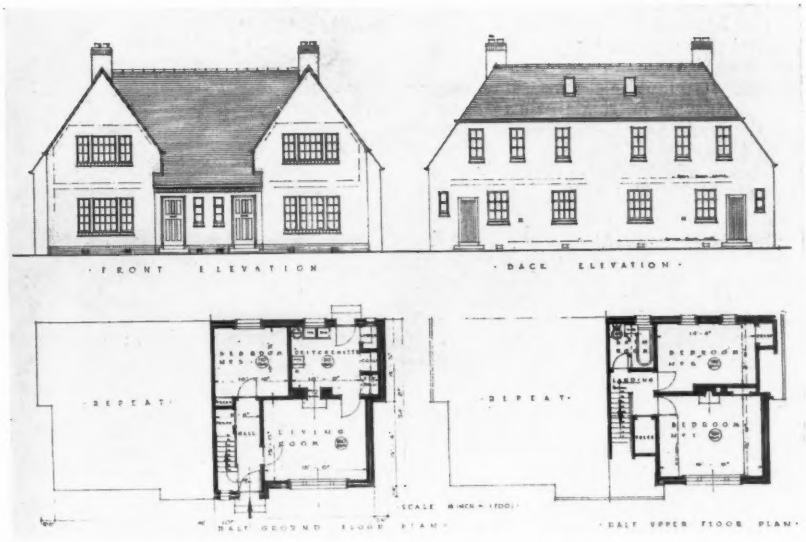
SCHOLARSHIPS IN ARCHITECTURE

Two Open Entrance Scholarships in Architecture for 1935 (each value 72 guineas per annum), tenable at the Architectural Asscciation School of Architecture, have been awarded to Mr. R. S. W. Smith (Felsted) and Mr. P. I. D. Tetley (Charterhouse).

Mr. P. H. Braddock (King's College, Wimbledon), Mr. J. L. C. Bailey (Rugby), and Mr. R. B. Holland (Harrow) gained Honourable Mentions.

HOUSING

A new block of flats erected by the Westminster Housing Trust at Pulford Street, S.W., was opened on Monday by the Duke of Kent.



Elevations and Plans of the winning design in the competition for four-roomed houses recently promoted by the Glasgow Corporation. The author of the design was Mr. Samuel M'Coll, of Paisley.

New Competitions

September 2.—Sending-in Day. The Liverpool Building Trades Exhibition, in conjunction with the Liverpool Architectural Society, has organised a competition to improve the amenities of suburban building estates, and is offering eight prizes of £10 for drawings of the lay-out or planning of 20 pairs of semi-detached villas at a "T" junction of two roads. Assessors: Lt.-Col. Ernest Gee, F.R.I.B.A., Professor L. P. Abercrombie, F.R.I.B.A., Leonard Barnish, F.R.I.B.A. Premiums: eight awards of £10 each and £30 to be distributed at the discretion of the assessors. Conditions from the Competition Manager, Provincial Exhibitions Ltd., Renshaw Hall, Liverpool, 1. No deposit. The latest date for the submission of designs is September 2 at 12 noon.

October 5.—Sending in Day (noon). The Council of the County Borough of Brighton invite architects of British nationality, resident in the British Isles, to submit designs for the building of a new fire station at Brighton. Mr. Stanley G. Livock, F.R.I.B.A., has been appointed as Assessor.

Premiums of £200, £125 and £75 will be awarded to the designs placed first, second and third respectively.

Conditions of the competition may be obtained from J. G. Drew, Acting Town Clerk, Town Hall, Brighton, on payment of £1 1s. deposit.

[*For a full list of Competitions Open see page 8 of last week's issue.*]

Competitions Pending

Sanction has been received by the Bury (Lancashire) Corporation from the Ministry of Health this week to their application to borrow the sum of £161,000 for the purpose of erecting a new Town Hall.

Mr. J. Hubert Worthington has been appointed assessor in connection with the proposed competition to select an architect. Conditions have not yet been drawn up.

IN PARLIAMENT

THE Restriction of Ribbon Development Bill is now being considered in Standing Committee of the House of Commons. There are 360 pages of amendments, but, by frequent sittings, it is hoped to get the Measure through before the end of July, in order that it may receive the Royal Assent before Parliament rises for the Summer Recess.

In the House of Commons last week, after the London Building Act (Amendment) Bill had been read a second time Mr. Mitcheson moved an instruction to the Private Bill Committee which is to consider the Bill to insert provisions that no bye-laws may be made under the Bill without sanction of the appropriate kind. While congratulating the L.C.C. in their desire to bring their bye-laws up to date so as to take the fullest advantage of scientific development in the planning and construction of streets and buildings, he suggested that they were seeking to bring in a very serious precedent by endeavouring to avoid the sanction of the Minister of Health in their bye-laws. It was, he said, very easy to visualize the chaotic state of things that might prevail if every municipal authority or public authority were to create any kind of bye-law according to their desires and individual idiosyncrasies.

Mr. Croom-Johnson, who seconded the motion, said that this Bill in its main provisions was long overdue. That main purpose was to confer on the L.C.C. the right to say that those sections of the London Building Act which dealt with the methods of construction of London buildings should be amended by bye-laws which could be made without the constant necessity of coming back to Parliament in order to get the regulations and the provisions of the Statutes brought up to date. But it was unfortunate that a complete departure was proposed in the form in which these bye-laws were to be carried.

Mr. Selley, speaking as one who had had 40 years' practical experience as a London builder, related some of the difficulties which he believed that bye-laws made by the L.C.C. under this Bill would obviate. He said that when they were searching for cheap building material after the war, the then Minister gave sanction for a variation of the bye-laws. He believed that under one Housing Act it was laid down that any private builder could bring forward a case for relaxation. At the moment it was laid down in the London Building Act that footings must be possessed by every house. Parapet walls and heights of ceilings were all regulated by Acts of Parliament. Hundreds of builders had sent applications to County Hall, provided plans, appealed for relaxation of those parts of the Act and built their houses and had them occupied long before the Council got the application for relaxation.

That was only one side. Let them take another. The great industry of building had progressed very far during the last 30 or 40 years, but what had been the difficulty of the industry? In every case where any modification or alteration of methods of building was required it had to be worked out with officers of the County Council and district surveyors who were called on to administer the Act, and they had to get instructions from the County Hall, because there was really nothing to guide them. He sat on that Committee which was drafting the new Amendment of the London Building Act. It was a body composed partly of members of the County Council and partly of engineers, architects, surveyors, and all those best qualified to judge on the matter, and they were unanimous in asking the Council to promote legislation which would put this into operation. One particular building came to his mind—Shell-Mex House. If the findings of this Committee had been verified before that building was erected they would probably

have saved from £10,000 to £15,000 on the additional strength of steel and material that was put into it. The L.C.C. had had 50,000 applications to pass through its Building Acts Committee, and he knew of no single case in or outside the trade which had raised, or was likely to raise, any objection to what was now being asked of the House.

Mr. G. R. Strauss said that London had been debarred from the benefit of the inventions and discoveries which had so much improved the technique of building in recent years. Accordingly, in 1931, the L.C.C. set up a very expert committee, consisting partly of members of the Council, but very largely of experts outside, to consider the whole problem. They reported that the Council should take the first possible opportunity of bringing before Parliament a Bill which would enable the Council to control the building of London by bye-laws instead of by Statute. Under the new procedure the Council would draw up bye-laws, which had to be advertised in a public paper for two months. If, during that period, no objection was taken, the bye-law came into force, but the Council had to send the bye-laws to the Secretary of State, to the Common Council, the Council of every Metropolitan Borough, the Ecclesiastical Commissioners, the Royal Institute of British Architects, the Chartered Surveyors' Institution, the Incorporated Association of Architects and Surveyors, the Institute of Civil Engineers, the London Chamber of Commerce, the Institute of Builders, and the London Master Builders' Association.

Mr. D. G. Somerville said he did not think the House realized the position of the building industry in London today. It was in 1909 that a regulation was passed making steel frame buildings possible. In 1926 the London County Council were given general powers, under the General Powers Act of that year, to make regulations with regard to buildings of reinforced concrete. This was 1935, and building science and engineering science had advanced with great strides. The position today was that if they submitted a plan to the Council for a structure which was not a standard structure the surveyor who was responsible for the inspection of all such buildings could not deal with that matter. One had to send an application to the L.C.C. and submit plans. That meant a delay of three, four, or even six or seven weeks before one got consent or refusal. The result was that building was held up. These bye-laws, having been carefully considered by the L.C.C. after consultation with experts, should be adopted.

Sir K. Wood, the Minister of Health, welcomed the proposal in the Bill, which he said gave him more power than he had at present.

The motion for an instruction was withdrawn.

THIS ARSHETECTURE

MILK TO PRESERVE ABBEY

The interior walls of Westminster Abbey are being "painted" with milk to preserve them from the ravages of time and atmosphere.

Milk has been proved to be very nourishing for the walls. The method of preservation is being used for the Poet's Corner.—From *The Star*.

LETTERS FROM READERS

CHAS. S. BARKER

H. ALEX SNOW, A.R.I.B.A.

"Olde Worlde"

SIR,—I read with interest the paragraph in the news column (page 980), Dangers of the "Olde Worlde," and particularly apt, I thought, was the statement of Lord Esher. Near where I live this is happening at, Colnbrook, the Bucks. side, which is practically being destroyed on the double pretence of street widening and slum clearance.

CHAS. S. BARKER
(*Colnbrook*)

Viewpoints

SIR,—I feel that the new method of presenting descriptive matter which is being adopted in the ARCHITECTS' JOURNAL should not be allowed to pass without comment.

It is well that the JOURNAL, which has so long and so unremittingly urged the importance of good planning in matters architectural, should at last have realized the need for some sort of plan in the arrangement of its own subject-matter. The description of the Kingston Guildhall in the current issue impresses one by its clear and ordered presentation—first the site, then plans, elevations, construction, interior treatment and so on in correct and logical sequence.

The indication of camera viewpoints is, too, a commendable innovation, although in the case of the Guildhall building one cannot but feel that—internally, at least—the indiscrimination of their selection is only exceeded by the restraint with which they have been shown on the plans.

H. ALEX SNOW
(*London*)

COMPETITION NEWS

BIRMINGHAM

It is reported that approximately 50 schemes have been submitted in connection with the competition for the proposed Civic Centre.

KENDAL

Approximately 120 schemes are announced as having been submitted in the competition for the offices for the Westmorland County Council.

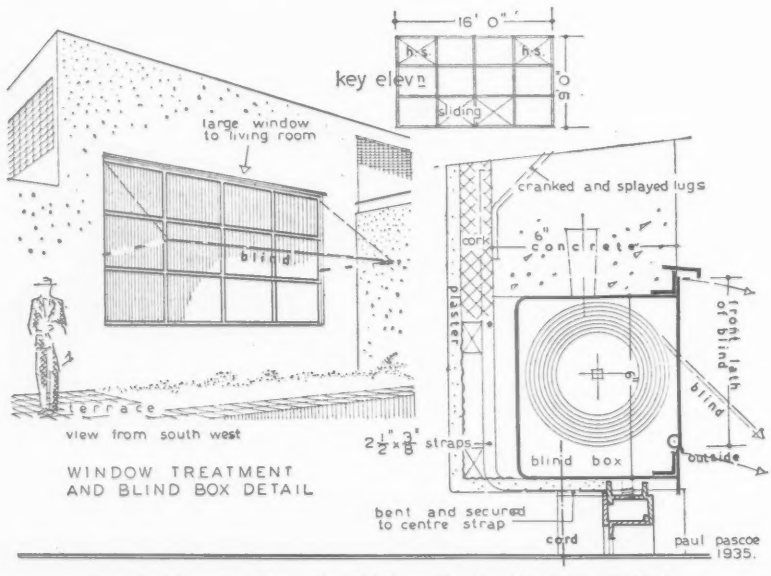
PROFESSIONAL ANNOUNCEMENTS

Messrs. Marshall and Tweedy, FF.R.I.B.A., have moved to 9 New Cavendish Street, Portland Place, London, W.1. Telephone: Langham 1133.

Mr. D. F. Martin-Smith, A.R.I.B.A., has moved to 5 Bloomsbury Street, London, W.C.1. Telephone: Museum 3412.

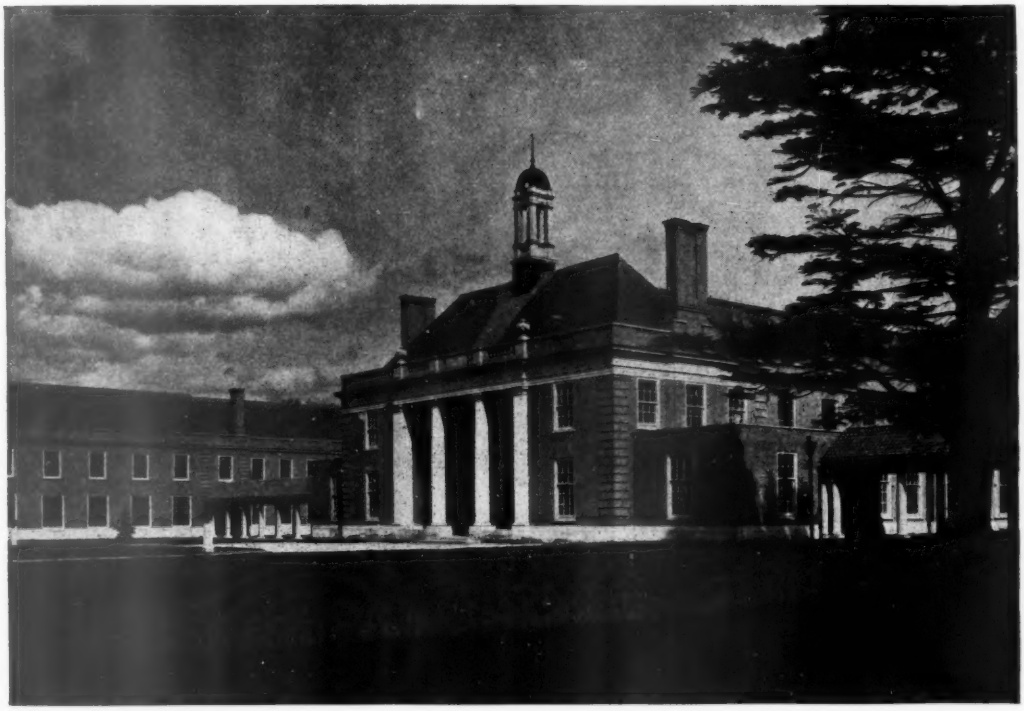
RETIREMENT

Capt. A. K. H. Brown, A.R.I.B.A., has retired, on account of ill-health, from the post of Surveyor of Works at the Tower of London.



Detail of house at Great Nast Hyde. Designed by F. R. S. Yorke.

FOUNDLING HOSPITAL, BERKHAMSTED

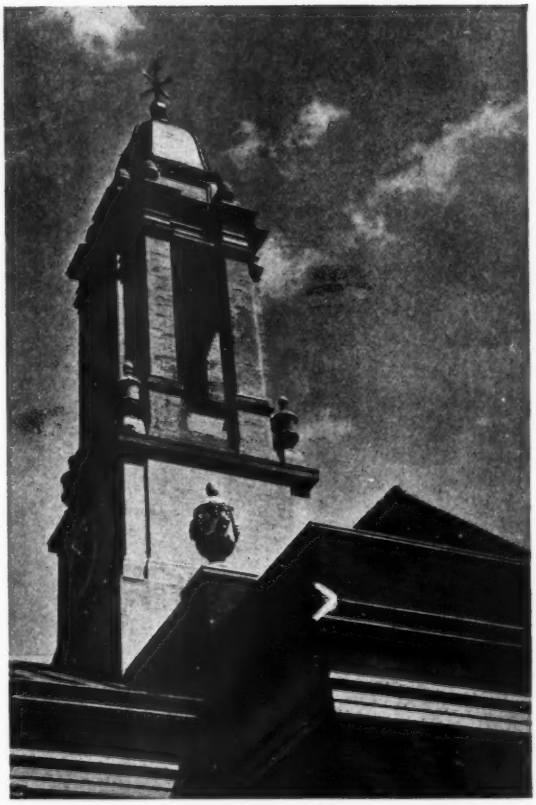


Originally founded in 1739, the hospital was situated in Guilford Street, Bloomsbury, until the sale of that site in 1926.

The new buildings are at Berkhamsted, Hertfordshire, upon a 40-acre site lying 500 ft. above sea level, the remaining 160 acres of the estate purchased being leased for farming.

The Foundling Hospital maintains between four and five hundred boys and girls from the ages of five to fifteen, both educating them and providing various forms of vocational training.

Above is a view of the entrance to the main administration block from A; *right, a detail of the chapel cupola from* B.



DESIGNED BY

J. M. SHEPPARD

AND PARTNERS

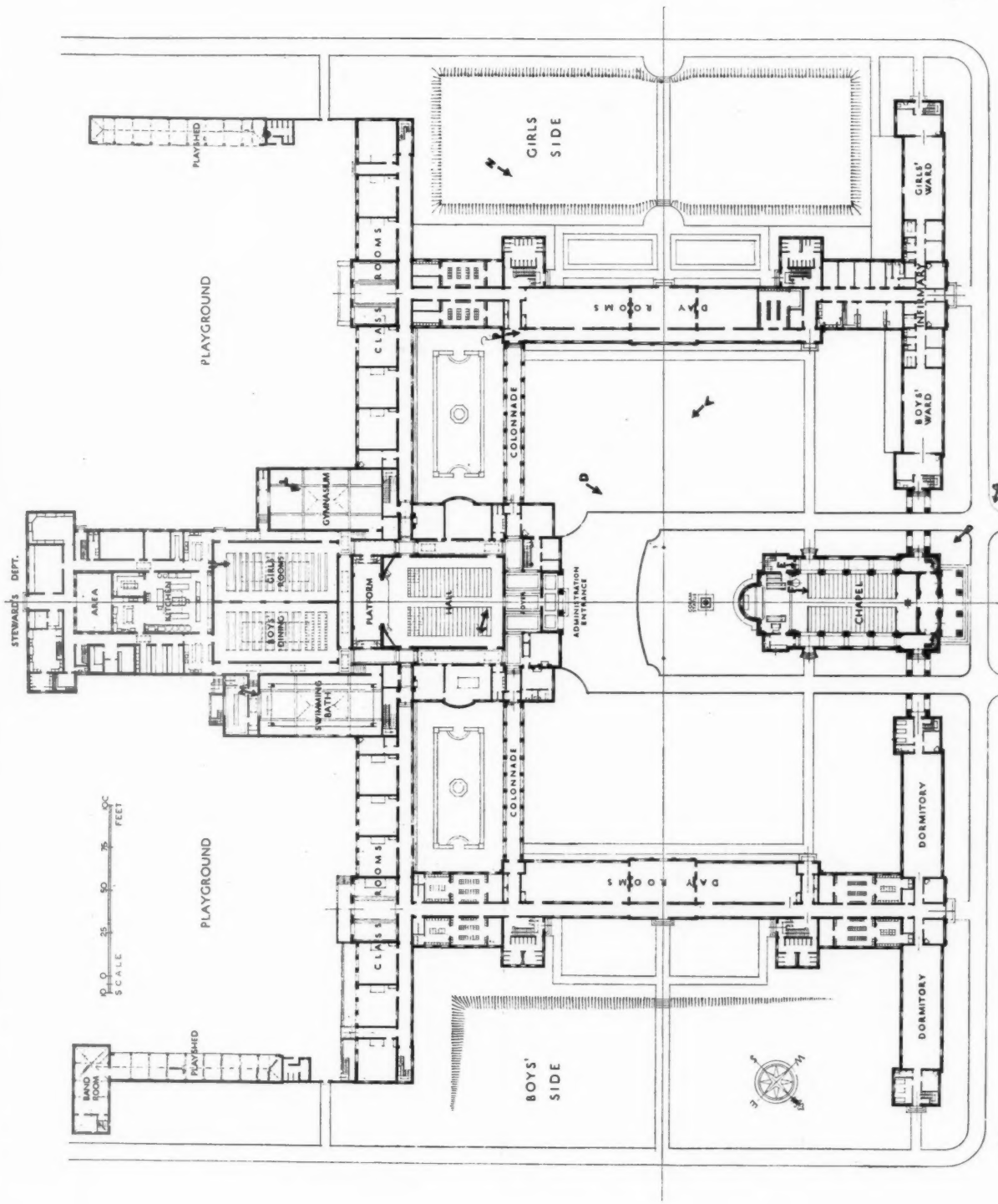
FOUNDLING HOSPITAL, BERKHAMSTED

Both the separate house and the compact, or collegiate, plan forms for institutions of this kind were considered in relation to the new buildings. Finally, the Governors desired that, so far as possible, the advantages of both types should be retained. The children make common use of the assembly spaces for dining and recreation, but are organized separately under their own housemasters and mistresses for other purposes.

From this dual arrangement arises the general disposition of the building. The chapel, assembly hall, dining-hall, swimming bath and gymnasium are grouped upon the central axis of the building, together with the administration and services. The boys' and girls' wings lie to the east and west of this axis enclosing one large and two small quadrangles. The infirmary temporarily forms a part of the girls' wing. The Governors desired that the elevational expression of the buildings should continue that of the former hospital so far as was compatible with contemporary plan forms.

Above is a general view of the Hospital from point C. (*See plan on opposite page.*)

GROUND FLOOR PLAN



DESIGNED BY J. M. SHEPPARD AND PARTNERS

FOUNDLING HOSPITAL, BERKHAMSTED:

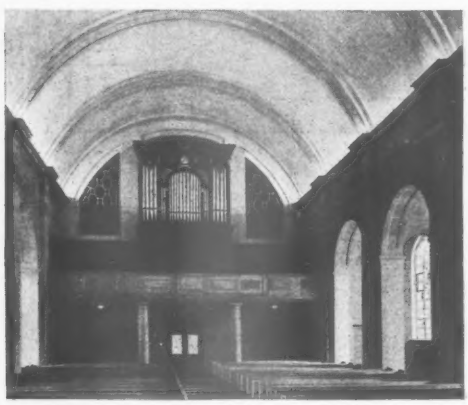
The chapel is faced, as are the buildings generally, with 2 in. local multi-coloured sand-faced bricks, St. Aldhelm stone dressings and a Portland stone plinth. The roof is of plain tiles, and the cupola of St. Aldhelm stone and copper.

The interior treatment is of fine roach bed stone for the whole of the nave arcading, as well as for the altar and chancel paving. The joinery is of English oak.

The pulpit, altar rails, and the organ presented to the hospital by Handel, are from the former chapel.

The nave flooring is of oak block, and the nave lighting indirect from the cornice.

Above is the chapel from D. *Left, a nave aisle from* E, *showing the girls' doorway to the quadrangle in the foreground. Below, the nave from* F.

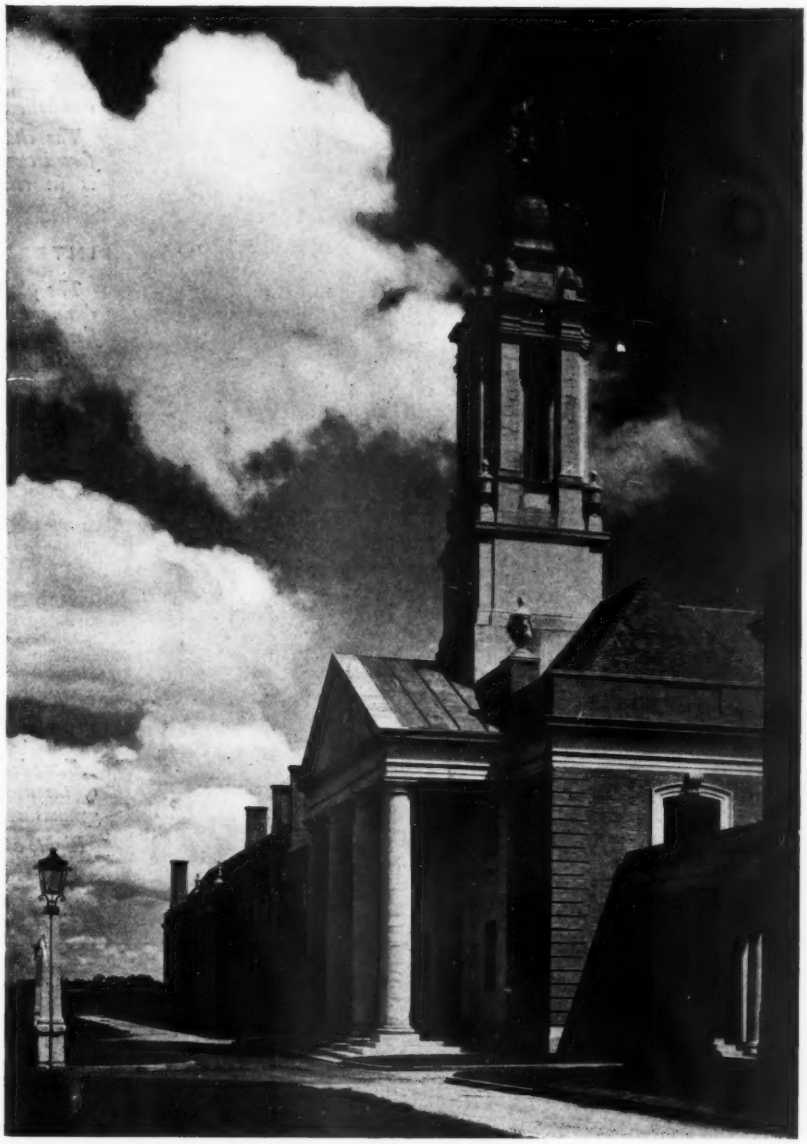


BY J. M. SHEPPARD AND PARTNERS

The first floor contains dormitory and staff accommodation in the wings, with a board room over the main entrance. Sleeping accommodation for the kitchen staff is provided at the rear of the building.

Staff rooms are placed at the ends of the wings and upon the centre lines. In the boys' wing the baths and night w.c.'s are placed adjoining the central staff rooms, occupied by the house-masters, and wardrobe rooms fitted with lockers are arranged at the ends of the centre dormitories above the day lavatories. The staff rooms terminating the wings are occupied by nurses in charge of the very young children.

The hospital was executed under a single contract, save for the gardens and playing-fields, which were laid out by a specialist firm.



The illustrations on this page show a detail of the chapel portico, flanked by the colonnade spanning the main approaches. The view is from point B. *Left, the girls' dining hall from* H.

C

FOUNDLING HOSPITAL, BERKHAMSTED:

CONSTRUCTION

The general construction is of weight-carrying brick walls, hollow tile floors, timber truss roofs, and hollow block partitions.

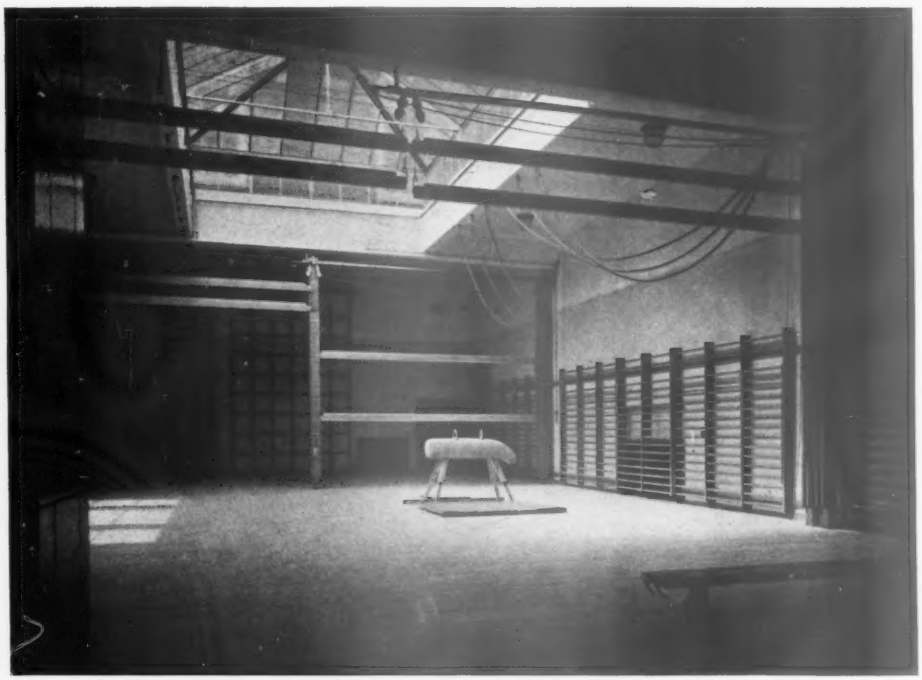
The chapel cupola is skeleton framed in reinforced concrete, and the barrel vaulting to the nave is in reinforced concrete.

INTERNAL FINISH

The plaster ceilings and laylight framing of the dining halls are hung from steel trusses. The floor over the temporary Infirmary block is laid with a specially sound-proof floor of 1¼ in. teak on rebated battens which rest on rubber isolating pads. These pads are given an initial load by means of square pre-cast concrete slabs resting in the rebates.

Above is a detail of the oak gallery and panelling of the assembly hall from point K. *Below, the gymnasium from* L.

Right, a detail of the swimming-bath from M.



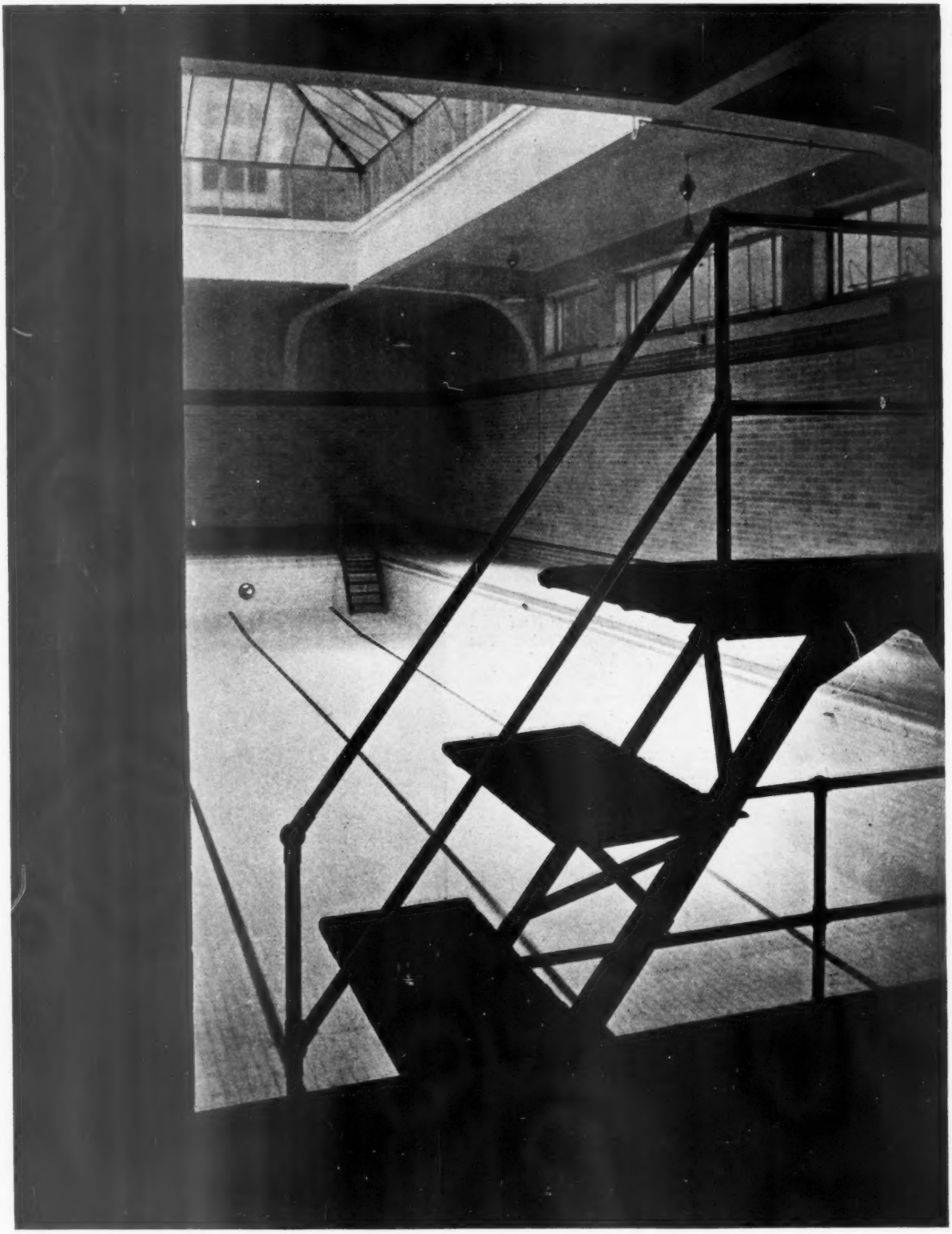
The general internal finish of the Hospital is in plaster with Columbian pine joinery and various hard-wood block floors. The ground floor corridor is of rubber with tiled walls. The doors, door-frames and dado panelling in the classrooms and elsewhere are in teak.

The whole of the joinery in the dining and assembly halls is of English oak.

The lavatory and bath-rooms have floors and cove skirtings of red asphalt.

Staircases are of pre-cast terrazzo with non-slip strips inset.

BY J. M. SHEPPARD AND PARTNERS



FOUNDLING HOSPITAL, BERKHAMSTED

The swimming bath is of reinforced concrete lined with tiles, and the walls are finished in stone-faced brick. The gymnasium is finished in plaster with a maple floor.

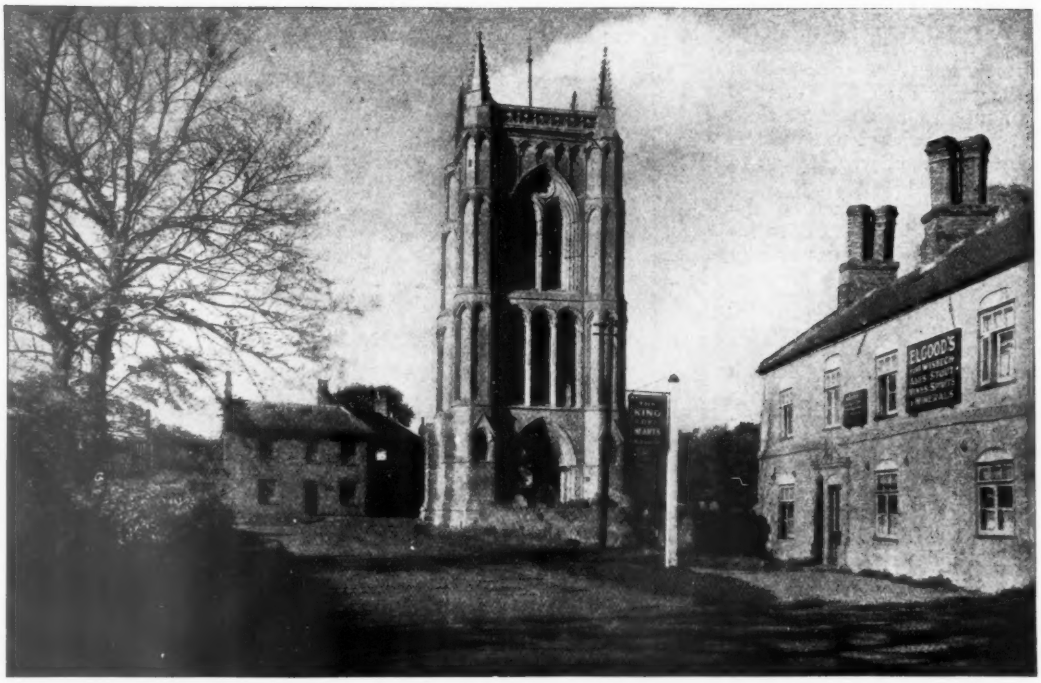
Heating generally throughout the building is by hot-water radiators on the low-pressure accelerated system. The assembly hall skirting forms a continuous heating unit, bronze finished. The boilers are fed with solid fuel.

Above, the west elevation from N. *Right, one of the ground floor corridors from* P.

DESIGNED BY

J. M. SHEPPARD

AND PARTNERS



West Watton, Norfolk : the detached thirteenth-century bell-tower. From "The Parish Churches of England."

LITERATURE

THE ENGLISH PARISH CHURCH

[*BY S. E. DYKES BOWER*]

The Parish Churches of England. By J. C. Cox and C. B. Ford. London : B. T. Batsford, Ltd. Price 7s. 6d. net.

ANYTHING which induces people to search out for themselves the beauties of scenery and architecture which this country contains is, as Dr. Inge says in his preface to this book, doing a valuable service. It can be said with justice that the British Heritage Series, to which this volume is the latest addition, deserves the commendation. The books that comprise it provide, at a reasonable price and within a small compass, plenty of information with a profusion of excellent illustrations. The latter are a striking indication of the advance made in photography during recent years, and, comparing this edition with the original one published in 1914, it is, perhaps, the improvement in the quality of the illustrations that is the most conspicuous difference. The original text has been abridged and largely rewritten, incorporating some of the former matter, but adding new chapters on the fittings of churches and local varieties in design. Compression has, of course, made it necessary to omit much that it would have been desirable to include, but, on the whole, the cuts are judicious and the new book is sufficiently comprehensive for popular needs.

The chief problem which writing a work of this sort involves is how to impart knowledge without recourse to the habit of stringing examples together with the words "as at . . ." so making it a mere list of names. If it cannot be said that this book has solved the problem, at least it has not been defeated by it. But a few minor points call for some criticism.

Extensive as was the late Dr. Cox's knowledge, his writings are by no means accurate, and it is regrettable that the editor of this new edition, instead of taking the opportunity to remedy this fault, has aggravated it by perpetrating fresh mistakes of his own. It must suffice to give a few instances. In Gloucestershire, we are told, "the most distinctive feature is the slender spire with a roll moulding at the angles ; if with broaches these are very stumpy as at Slimbridge." In the first place, there are far more towers than spires in that county—indeed, in the whole of the Gloucestershire area of the Vale of the Severn it would be hard to count more than fifteen or twenty old spires, and they are commoner there than in the Cotswolds. Yet Gloucestershire contains some three hundred odd churches. In the second place, the spire of Slimbridge is neither stumpy nor broached.

In the neighbouring county of Herefordshire it is incorrect to quote Garway as an example of a detached tower. One of the curious features of that interesting church is that church and tower are joined by a narrow passage.

The date of Blandford Church is first given as "*circa* 1735," and, a page later, as "*circa* 1720." In fact, its architect, John Bastard, began it in 1732, a year after the fire which destroyed the old church and most of the town.

On the same page occur two mistakes in one paragraph. St. Clement Danes is coupled with St. Martin's-in-the-Fields as a work of Gibbs. It is, of course, by Wren and the author is confusing it with its neighbour, St. Mary-le-Strand. Then John James, we read, "built the fine churches at his native Greenwich." The only church work, however, that is known to be by him at Greenwich is the addition of the steeple to Hawksmoor's church of St. Alphege.

A page later, St. Luke's, Chelsea, is ascribed to one James Smith. Surely his correct name was James Savage ?

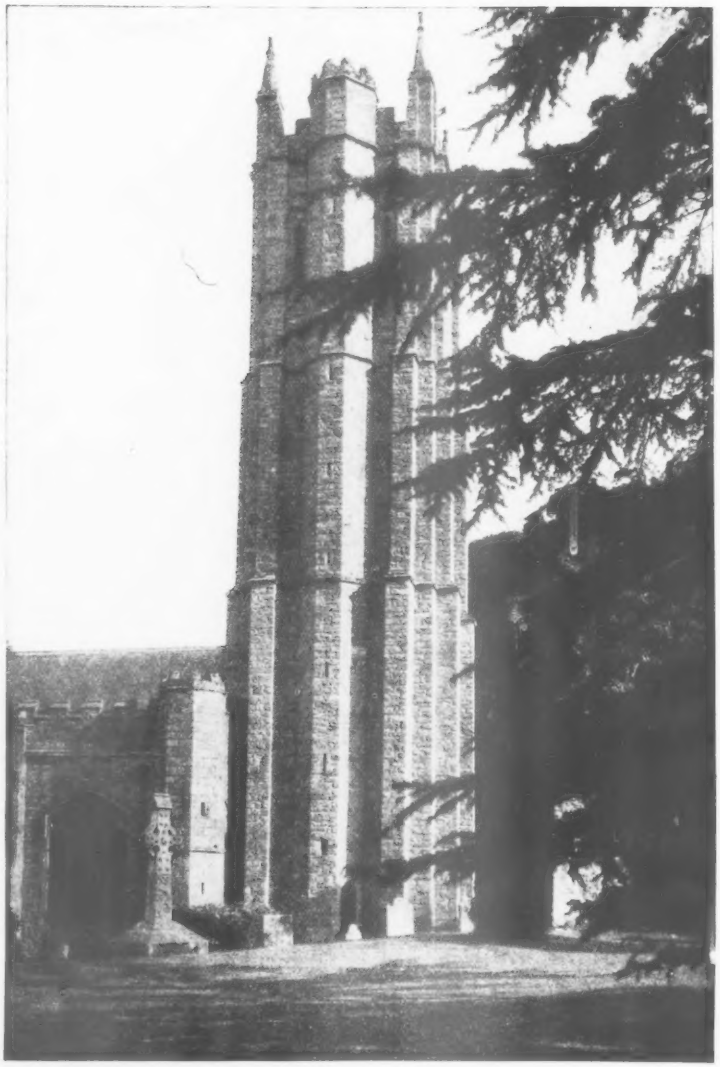
Other statements are somewhat misleading. It is remarked of the windows in Fairford Church that "practically

the entire original glazing has been recovered." Why "recovered"? The glass has never been lost or dispersed, and even the general releading of 1890 did not amount to much more than repair and turning round those pieces of glass that had been wrongly set to face outwards.

It is doubtful, too, whether the "superlatively long" (?) transept windows of Pembridge Church can really be said to be reminiscent of those of Hereford Cathedral. The north transept of Hereford, built about 1260, was a work of great originality and exercised an immediate influence on church architecture in the vicinity. But with its uncompromisingly geometrical character, the net tracery of the Pembridge windows, fifty years later in date, seems to have little in common. Why not have chosen a church where there need be no such doubt? At Ross, Ledbury, All Saints and St. Peter's, Hereford, the connection is indisputable.

So far as the writing is concerned, too many passages suggest indifference to careful choice of the right word. The use of dramatic adjectives becomes tiresome when their application is inexact or unjustified; it savours of journalism and ends by leaving us unmoved, not impressed. Thus to talk of the "mighty height" of the tower of St. Columb Minor, Cornwall, is absurd. The tower looks tall, because the church is very low, but, in reality, is but little more than one hundred feet. If this is "a mighty height," what are we to say of Boston Stump?

Finally, when a plain statement such as "clerestories are very rare" would suffice, why adopt the extraordinary periphrasis "Clerestories are excessively exceptional"?



Ashburton, Devon: a typical tower of the county, with mid-side stair-turret. From "The Parish Churches of England."

THE TRADITIONAL ROOF

Roof Slating and Tiling. By Frank Bennett and Alfred Pinion (with special contributions by other authors). London: The Caxton Publishing Co., Ltd. Price 25s.

OFTEN in these days the average person is content with general effects and mainly anxious about labour-saving devices, and troubles himself very little, if at all, about the thought, the materials and the labour that have gone to make his house the thing it is. Design, choice of materials, methods of construction and so on seldom receive a thought. For those who will or can be persuaded to turn their attention to such matters, there is awaiting them a wide field of absorbing interest and enjoyment; for a house, especially one's own house, should be as enjoyable a work of art as a musical composition, exhibiting a harmony and purpose in all its parts and well repaying its study.

The volume now before us could be read by anyone with interest and advantage and would prove a storehouse of information about one important part of his house, that part which is perhaps the most easy to appreciate in all the technicalities of its practical and æsthetic functions—the roof, considered here in terms of traditional roofing materials.

Finely produced in large clear type, with numerous photographs and many other illustrations in a free and pleasing style of drawing, it will attract and hold the attention of any reader seriously taking it up. He will learn of the various kinds of slates and tiles, of their several sources and qualities. It explains how roofs are made and covered and the different styles of slating and tiling are described with the many embellishments which can be added to give grace and beauty to the appearance of the finished work. Chapters on Repairs to Roofs, written by several practical collaborators, provide useful explanations which should help the reader, when repairs are necessary, to undertand how such work has to be done and why a seemingly small replacement may involve the treatment of an unexpectedly large area. For these reasons it would be advisable for estate agents, property owners and all others interested in any way in the care and upkeep of buildings to have a copy of this volume at hand for reference.

Roof Slating and Tiling was, in point of fact, primarily written for the use and guidance of craftsmen, architects, engineers and surveyors, and it contains, in addition to the historical, descriptive and explanatory text very complete information of a technical nature, including chapters on Quantities, Estimating, Measuring and Pricing. For the student, therefore, and others professionally concerned with its subject, it can be recommended as giving an up-to-date and comprehensive survey of this branch of building construction and design.

F. A. C.

A HOUSE AT BOGNOR REGIS

DESIGNED BY

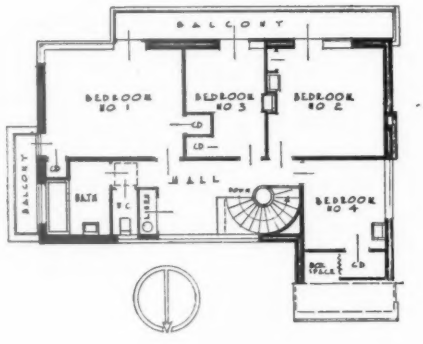
S. CAMERON

KIRBY

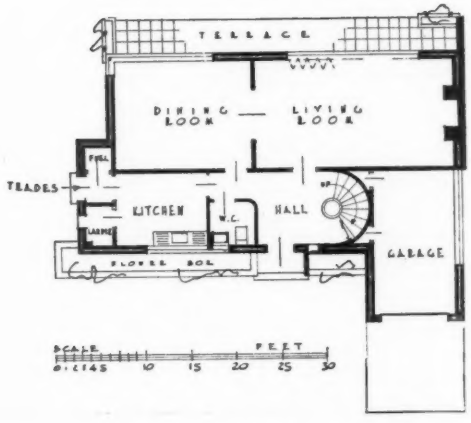
SITE AND PLAN. *The garden lay-out was completed some time before the house was finished; and a bathing hut in reinforced concrete, circular in plan and with a flat R.C. roof, is built at the bottom of the garden, which leads directly on to the beach.*

The original design of the house was of a more modern type, but the estate restrictions dictated to some extent the final design. A feature of the house is the large sliding, folding doors to the living room which enable it to be opened out in the summer to face the sea. The accommodation consists of living room with dining room connected by large folding doors, kitchen with two built-in fitments, hall, four bedrooms, bathroom, boxroom and garage. The house is built on the Aldwick Bay Estate.

On the right is a view of the garden elevation: the walls are rendered in cream and the supports to the balcony and the balcony rail are painted pillar-box red.



FIRST FLOOR PLAN

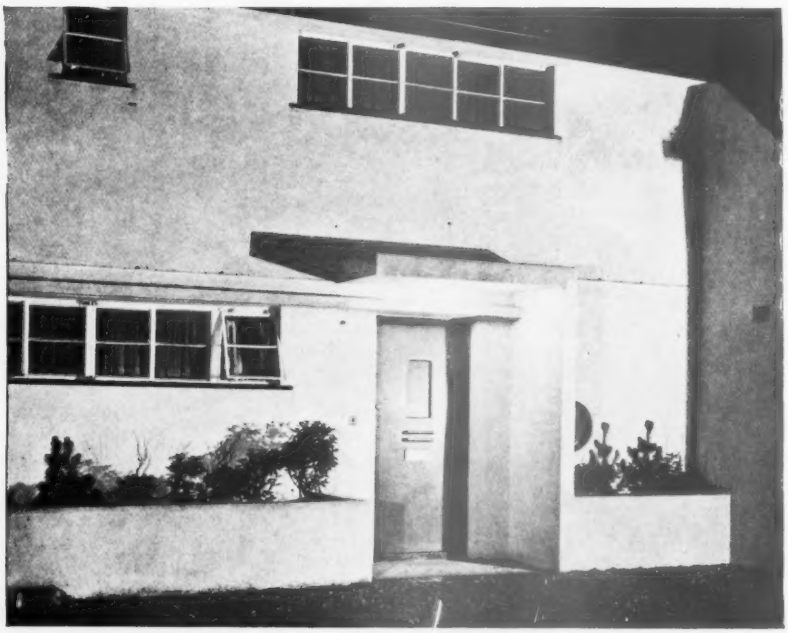


GROUND FLOOR PLAN

A HOUSE AT BOGNOR REGIS

DESIGNED BY

S. CAMERON KIRBY



CONSTRUCTION AND FINISHES. *The house is of brick, rendered externally with a special cream-coloured cement. Angle windows are formed in steel cantilever, and the balcony is supported on small circular steel columns.*

All bedrooms have large fitted cupboards and three of them have recessed lavatory basins with mirror and light panel over, all bedrooms have a view to the sea, and, where possible, access to the balconies. Rooms generally get a maximum of sunlight.

The house is heated throughout by electricity, and hot water services in the bathrooms, kitchens, etc., are supplied by electric boilers. Electric clocks are fitted in the living rooms and kitchen, the latter having an electric cooker and refrigerator.

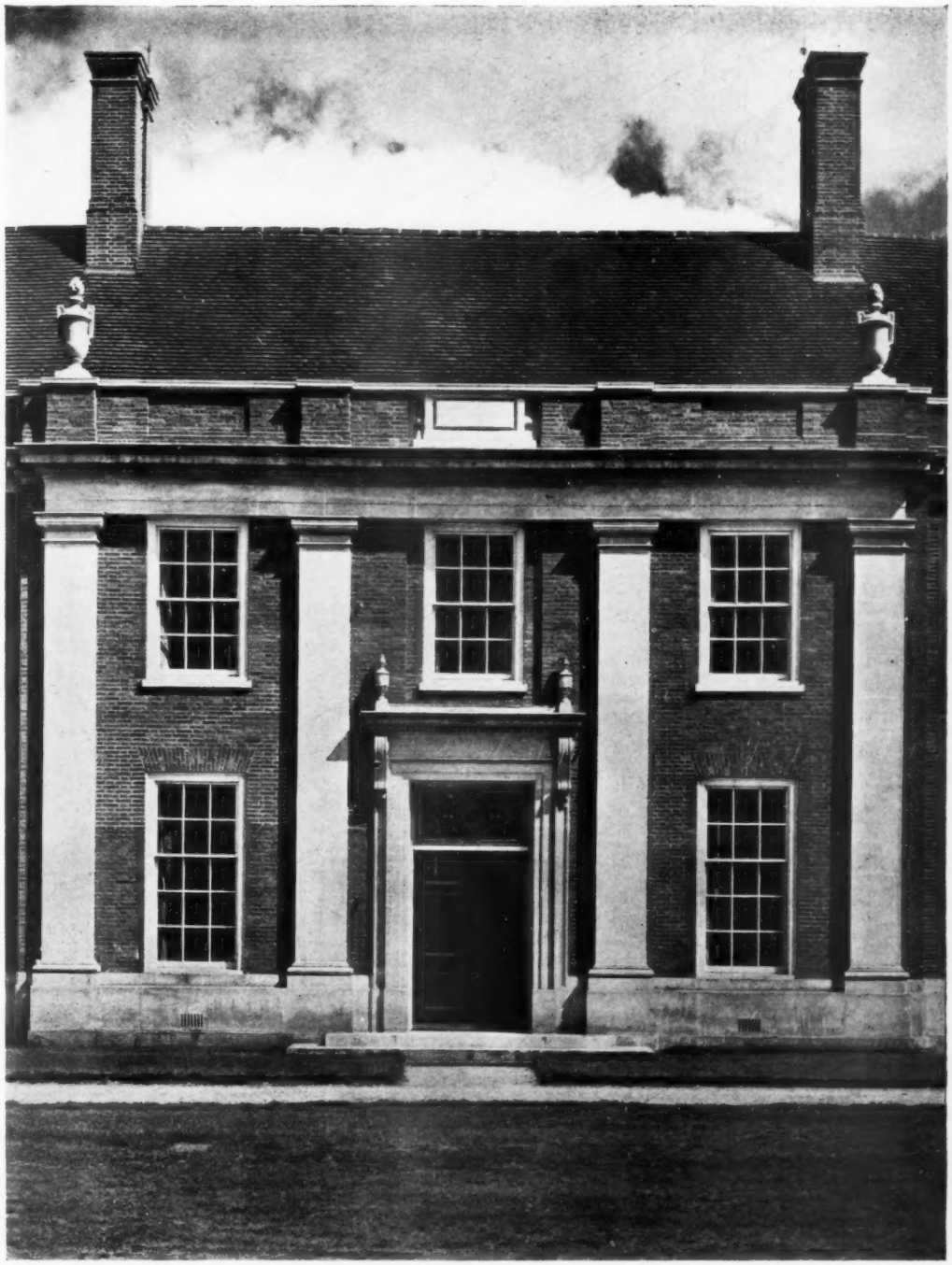
The floors generally are of 1 in. boarding, covered with 18 in. oak plywood squares; floors to the bathrooms and lavatories being covered in rubber; all soil pipes are taken down internally.

All the furniture of the house was specially designed by the architect, mainly straight grain walnut being used, together with simple units of cellulosed plywood.

On the left is a view of the main entrance; the door is pillar-box red with stainless steel fittings; below is the living room, furniture, dado and fireplace surround are French walnut, and the colour scheme is grey, beige and orange.

WORKING DETAILS : 287

PORTICO • FOUNDLING HOSPITAL, BERKHAMSTED • J. M. SHEPPARD & PARTNERS

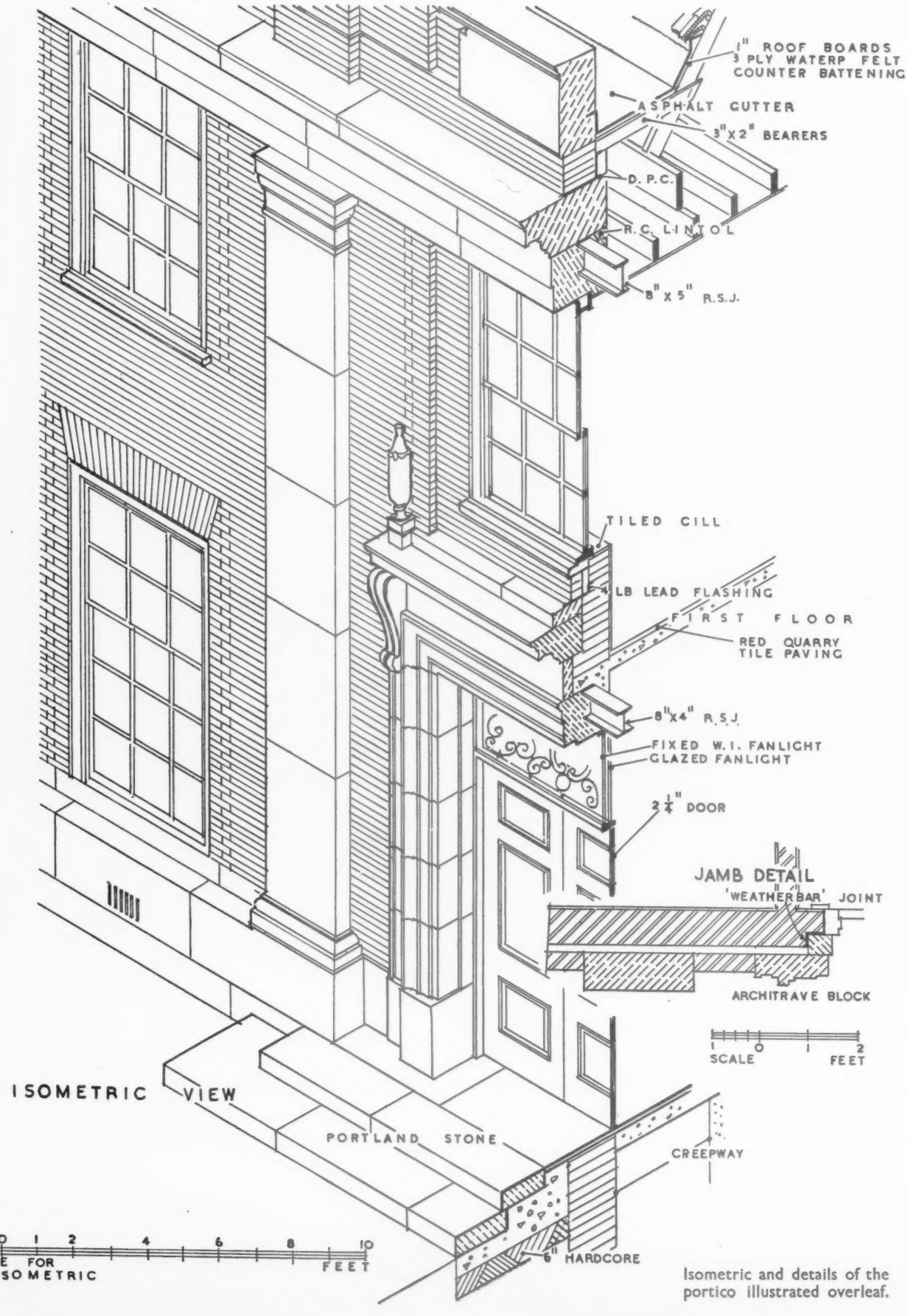


Above is a detail of one of the subsidiary entrances in the north front of the Hospital. The bricks are 2-in. multi-coloured sand faced, and of local manufacture. The dressings are of St. Aldhelm stone and the plinth of Portland stone. An isometric and details are shown overleaf.

FILING REFERENCE:

WORKING DETAILS : 288

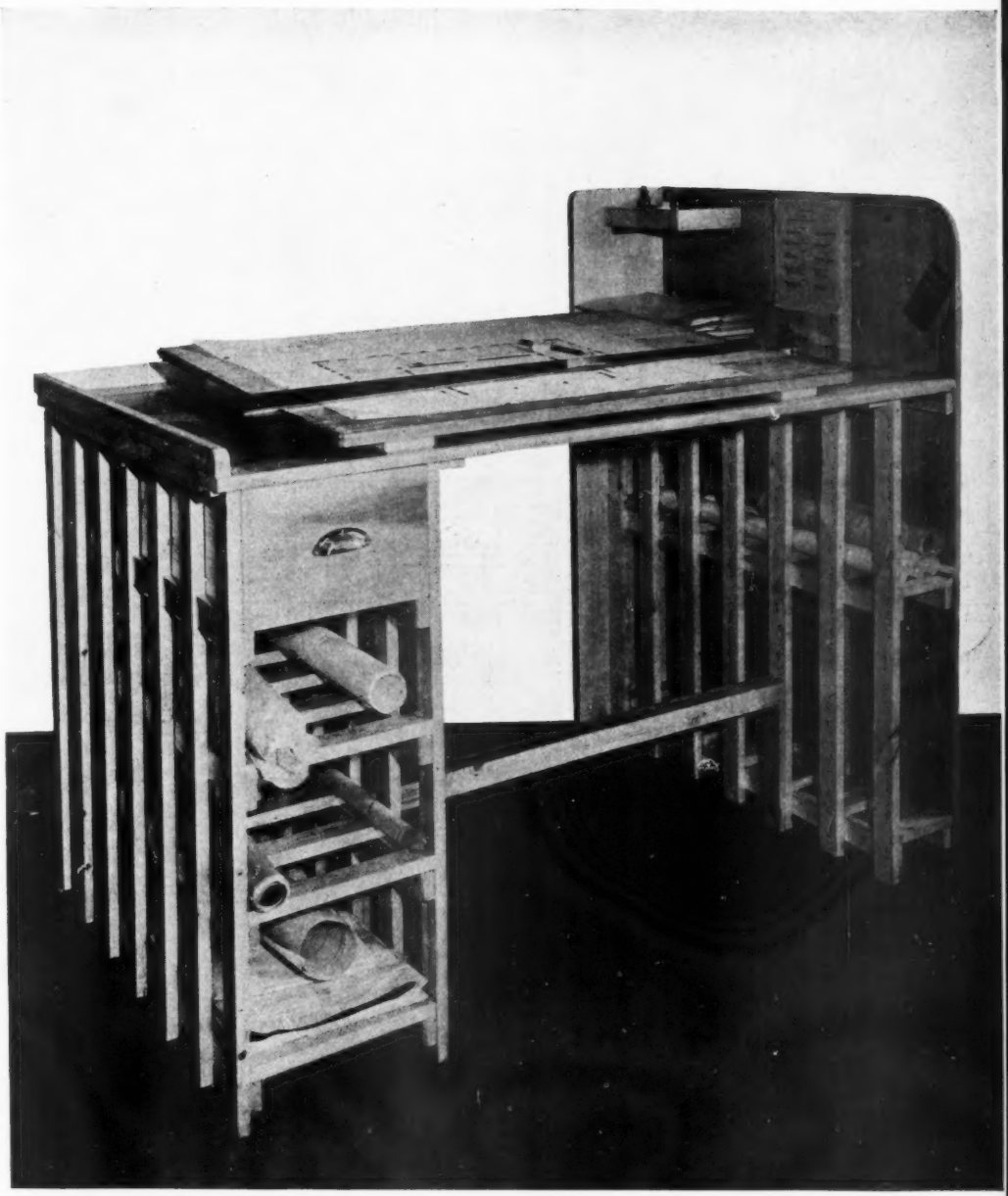
PORTICO • FOUNDLING HOSPITAL, BERKHAMSTED • J. M. SHEPPARD & PARTNERS



Isometric and details of the portico illustrated overleaf.

WORKING DETAILS : 289

DRAWING DESK • 43 WELLS STREET, LONDON, W. • PAUL PASCOE

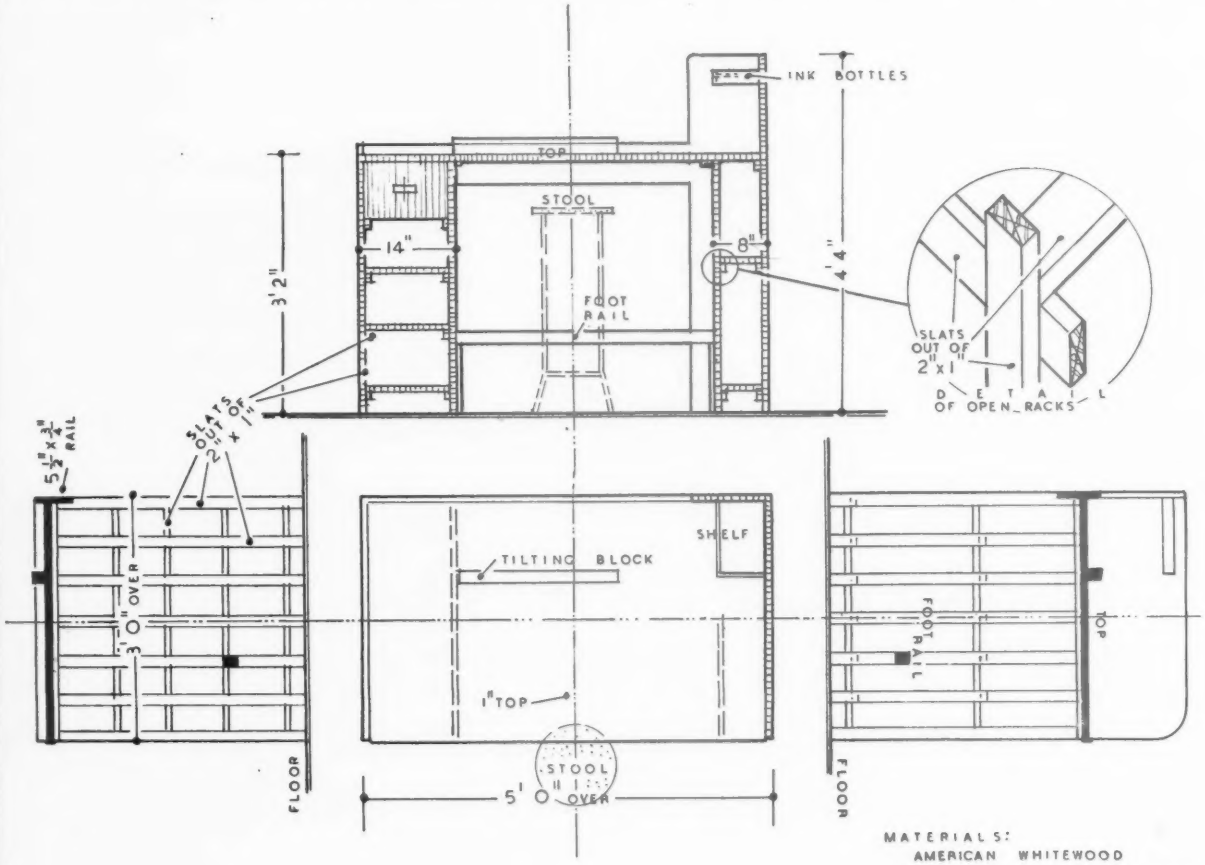


The drawing desk illustrated above is designed to suit the special requirements of the office in which it is used : these demand constant reference to other drawings, which are kept easily accessible for quick reference, rolled up in the side sections of the desk, and not, as in most offices, flat in a plan chest. An axonometric and details are shown overleaf.

FILING REFERENCE:

WORKING DETAILS : 290

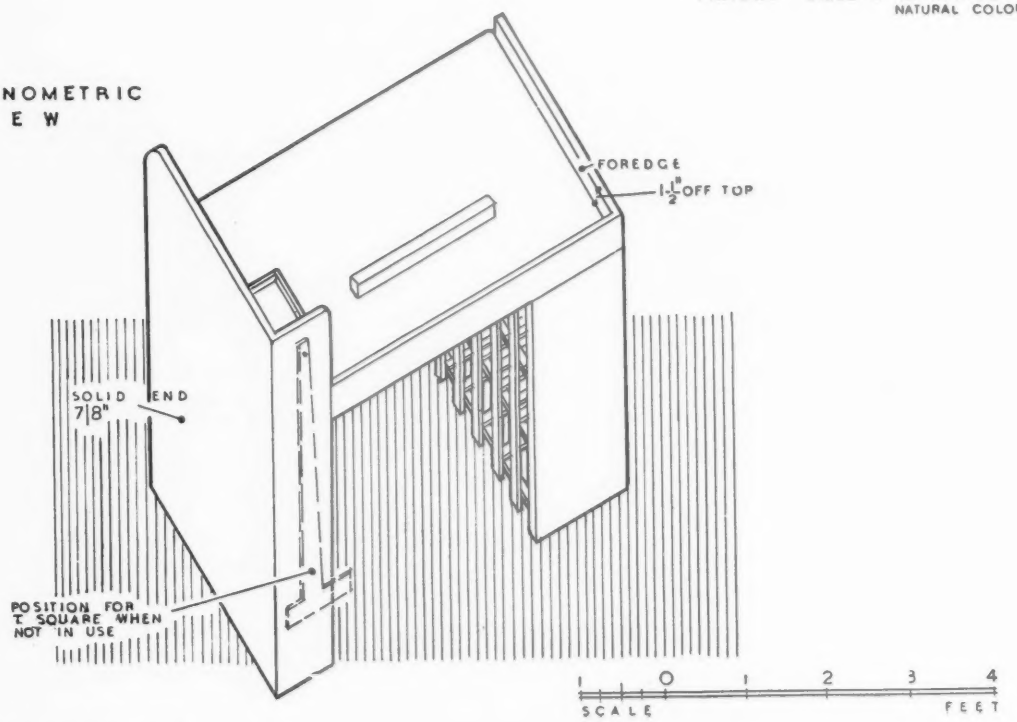
DRAWING DESK • 43 WELLS STREET, LONDON, W. • PAUL PASCOE



MATERIALS: AMERICAN WHITEWOOD

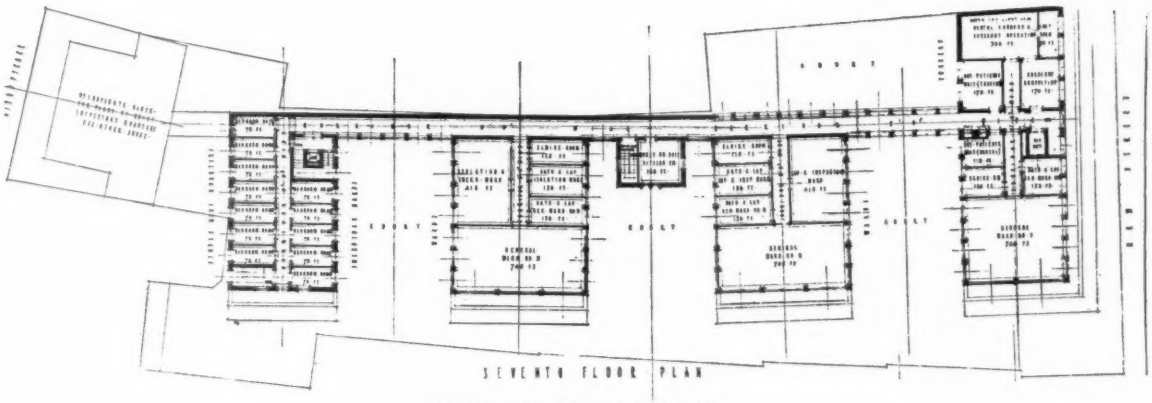
FINISH: SIZED & VARNISHED NATURAL COLOUR

AXONOMETRIC VIEW

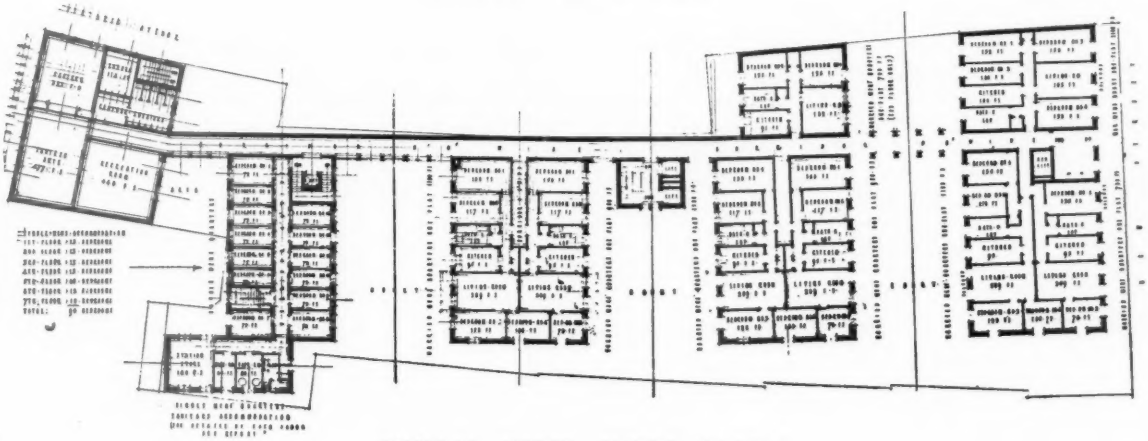


Axonometric and details of the drawing desk illustrated overleaf.

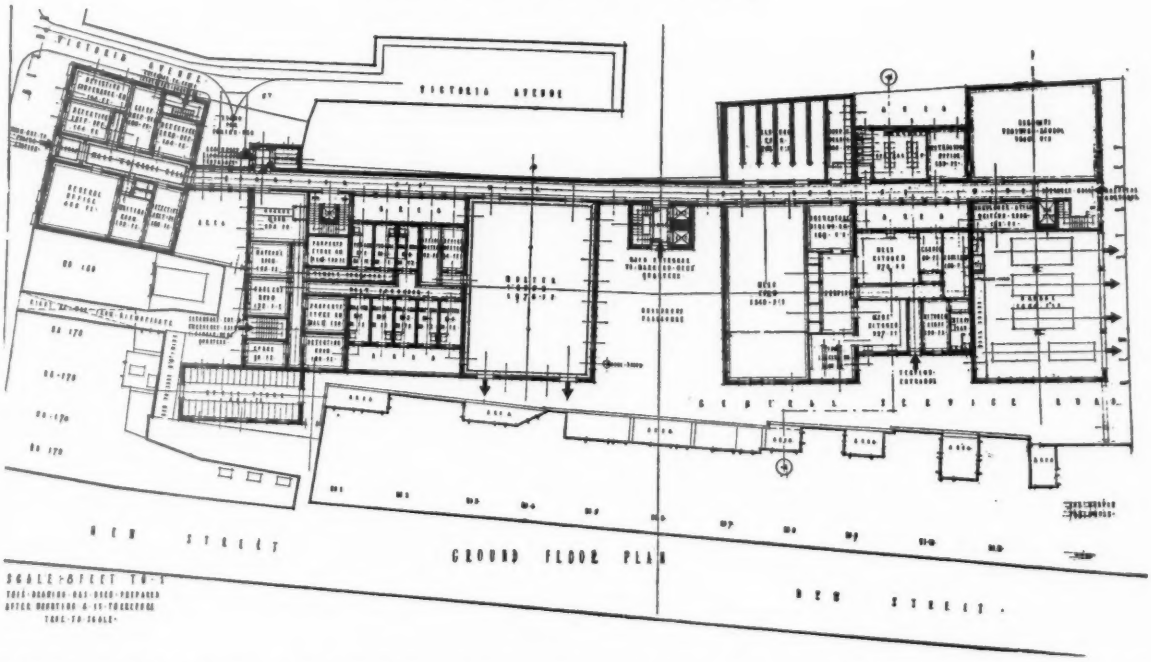
BISHOPSGATE POLICE STATION & HOSPITAL COMPETITION



SEVENTH FLOOR PLAN

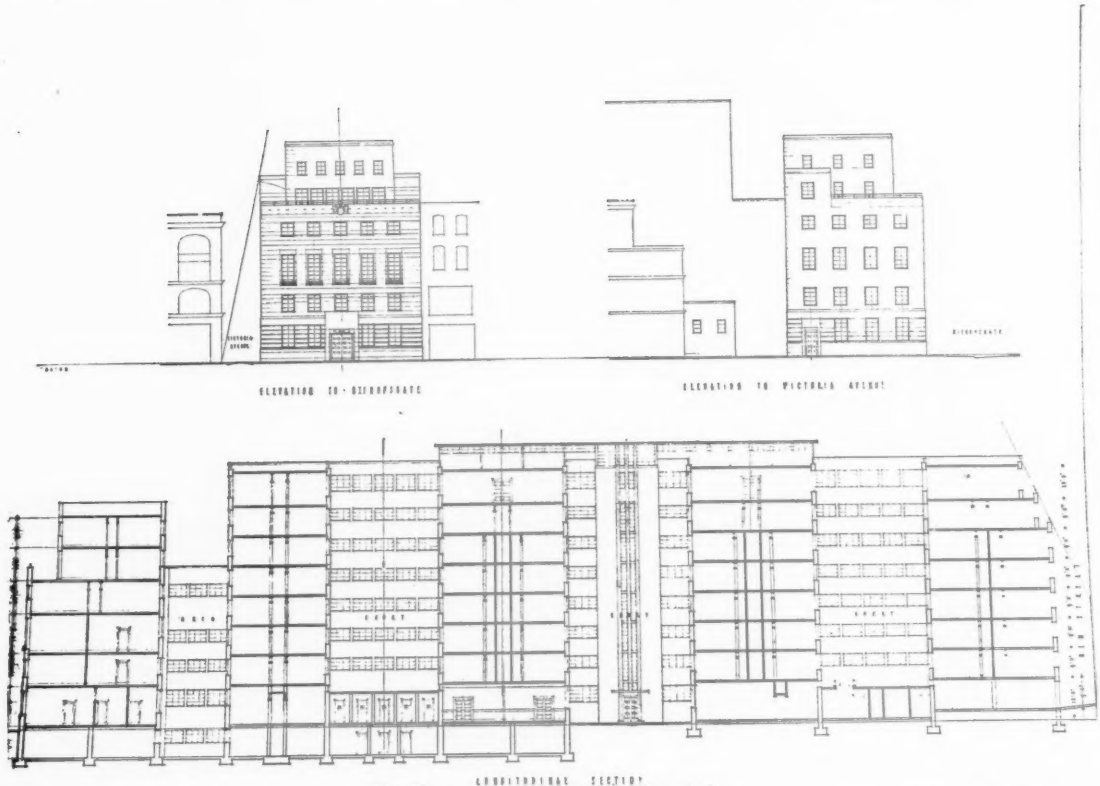


TYPICAL UPPER FLOOR PLAN

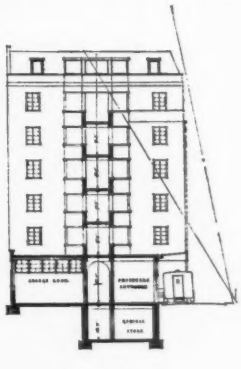


THE DESIGN PLACED FIRST: MESSRS. VINE AND VINE

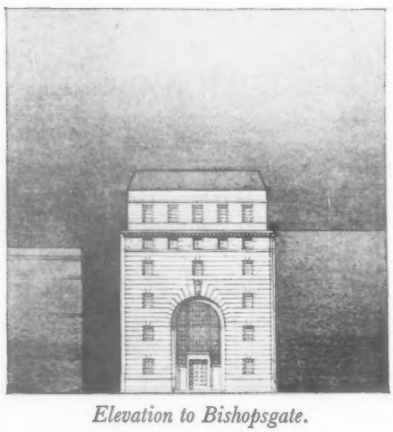
BISHOPSGATE POLICE



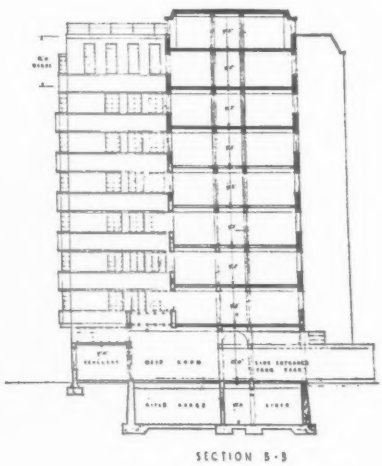
Elevations and section of winning design.



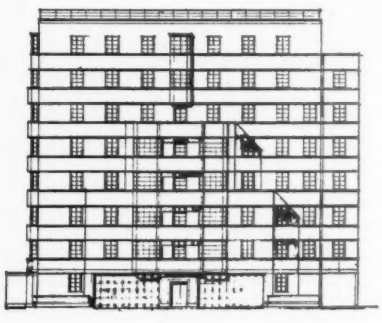
SECTION A-A.



Elevation to Bishopsgate.



SECTION B-B

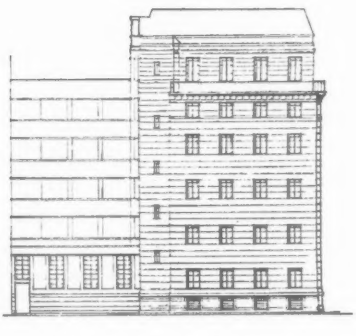


EAST ELEVATION TO NEW STREET

DESIGN PLACED

SECOND

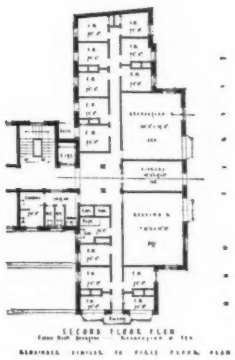
E. BERRY WEBBER

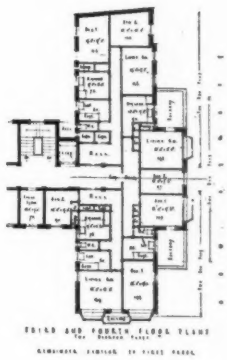


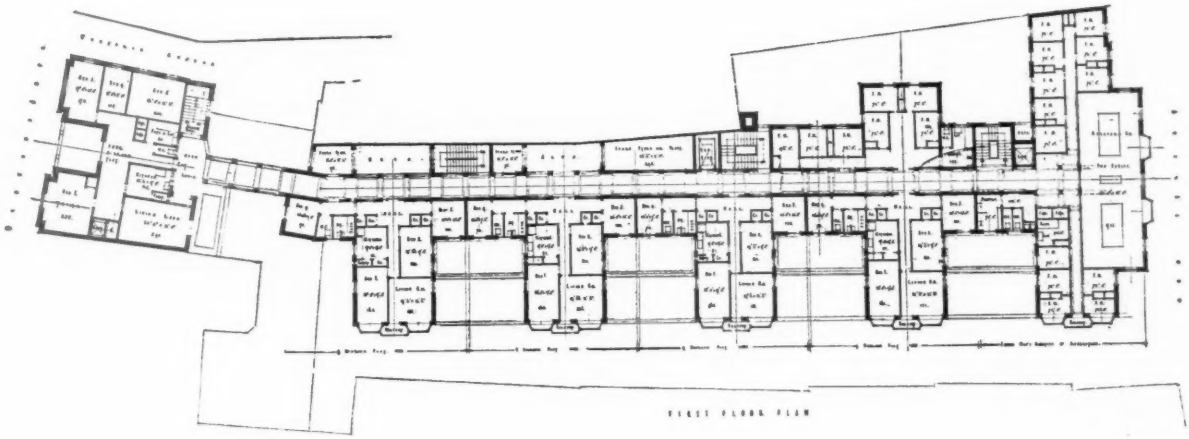
ELEVATION TO VICTORIA AVENUE

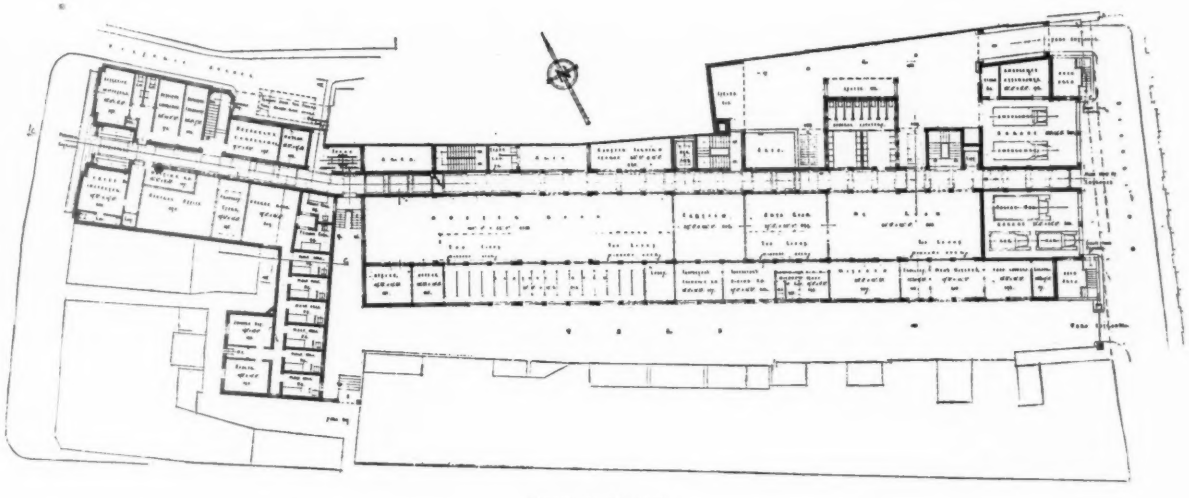
STATION AND HOSPITAL COMPETITION

First floor plan with details showing variations on second, third and fourth floors.









DESIGN PLACED SECOND: E. BERRY WEBBER

TECHNICAL SECTION: 22

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

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

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

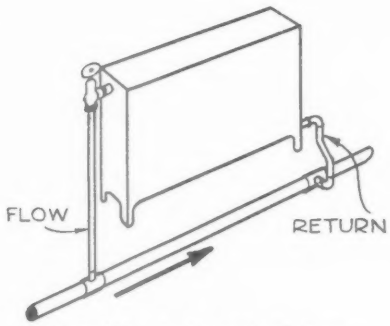


Figure 120. *Radiator Connections.* (*See page 31.*)

PIPE SIZING (*Continued*)

EXAMPLE (*b*) : ONE-PIPE DROP

IT is necessary to consider the index circulation first; this appears as in Fig. 121. The various radiators and flow and return mains may be considered as effective at one point known as the " average height."

With regard to the emission of the riser and drop, the negative effect of the one is assumed to balance the positive effect of the other and they are ignored.

The emission from top and bottom mains *t* and *p* does not cause so great a temperature fall relative to the fall in the drop itself (where, as in this case, three drop pipes occur) as if there were one only. If the emission from the three drops is roughly equal, and they are equally spaced, it will give a close approximation if the total of top and bottom mains is divided by 3.

In this case the average height is determined thus :—

$$\frac{\frac{h_1p_1}{3}+h_2p_2+h_3p_3+h_4p_4+\frac{h_5p_5}{3}}{\frac{p_1}{3}+p_2+p_3+p_4+\frac{p_5}{3}}$$

$$=\frac{\left(\frac{4\times5{,}600}{3}\right)+(6\times4{,}000)+(16\times6{,}000)+(26\times3{,}000)+\left(\frac{35\times8{,}000}{3}\right)}{\frac{5{,}600}{3}+4{,}000+6{,}000+3{,}000+\frac{8{,}000}{3}}$$

$$=\frac{365{,}000}{17{,}500}$$

= 21 ft. average *H* (approx.)

$CP\,(180°-140°)=\cdot163\times21=3\cdot423''$

$T=200+200+35+35+60+50+(20\ R\ @\ 5'=100)=680'$

$\frac{CP}{T}=\frac{3\cdot423}{680}=\cdot005''$ per ft.

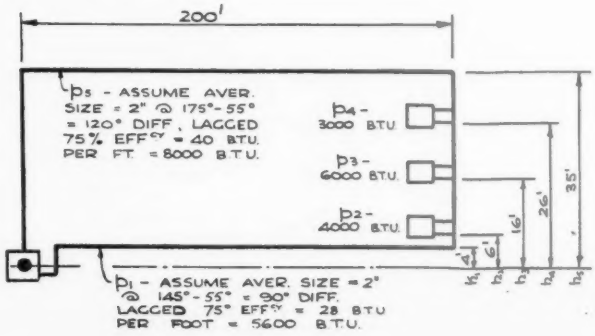


Figure 121. *Pipe Sizing—Example (b).*

From Table XXXIX a small schedule may be drawn up with ·005 in. per ft. as the resistance thus :—

Size	lb.×40	=	B.T.U.'s
¾"	147		5,880
1"	320		12,800
1¼"	583		23,320
1½"	950		38,000
2"	2,067		82,680

Fig. 121 may have the emissions filled in, taking the index drop at 20,000 total (including ⅓ of mains) and the loss from the drop itself and the other two, for the sake of the example, also at 20,000. (See Fig. 122.)

The first approximation to the pipe sizes may be filled in from the schedule in the manner shown.

Now that the sizes of the mains are known it is possible to re-calculate the emission and give each drop its correct proportion. It is also possible to calculate the resistance of the mains up to the first drop, deduct this from the *CP* for that drop, and arrive at a higher $\frac{CP}{T}$ for that pipe. Reference to the table will make it clear whether the size can be reduced to 1 in. Similarly, the second drop may also be dealt with separately.

Any tendency for the first two drops to short-circuit the last, in the event of the *CP* not being entirely absorbed by the resistance in each case, may be checked by the insertion of two valves marked *SV* in Fig. 122. Such valves

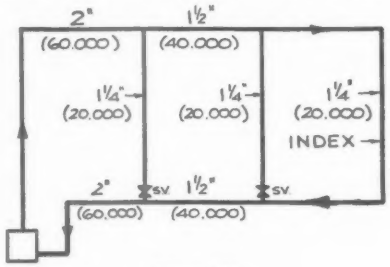


Figure 122.

are of the lock shield type without wheels.

The sizing of the radiator connections from the drop pipes, as in example (*a*), requires to be calculated independently of the main pipes. The actual diameter is not very important (provided it is large enough), as the surplus hot water will return to the same pipe, and so on to the next branch. If too small, however, the mean temperature of the water in the radiator would be lowered, and result in reduced emission.

The horizontal connection in Fig. 123 is sized as if there were a boiler at *X*. *CP* is established, as before, for the temperature drop available, taking this as 20 deg. maximum. *T* is the travel from the drop to the radiator and back, plus single resistances *R* bends and radiator.

Again, the sizes must range between ¾ in. and 1¼ in., the latter being the maximum possible with modern radiators.

When the radiator is some distance

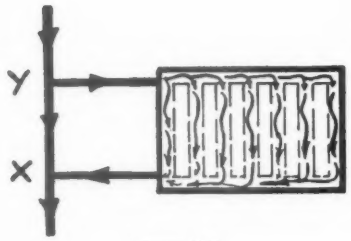


Figure 123.

from the drop it is common practice to reduce the size of the drop from *Y* to *X* by one pipe size to augment the flow through the branch. Some designers use tongued tees for the same purpose.

Another and more positive method is to carry down the return 18 or 24 in. to act as a cool leg, in effect lowering the level of the imaginary boiler "*X*." (See Fig. 124.)

As with the single-pipe ring main the

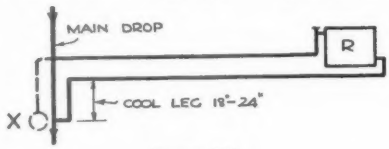


Figure 124.

radiator surfaces should now be adjusted in accordance with the revised mean temperature, assessed as before. The top ones will be reduced, the middle will probably remain, and the bottom ones will be increased.

EXAMPLE (*c*): TWO-PIPE RISING SYSTEM

Where it may be applied, this is by far the most satisfactory system for reasons already stated, but accurate balancing of the circulation is essential for success, especially if the apparatus is extensive, with a large number of branched circuits.

For this example Fig. 125 will be considered.

Index radiator obviously No. 1.
Flow and return $= 180° - 140°$
$CP = \cdot 163 \times 10 = 1 \cdot 63''$
$T = 40+60+40+60+20+30+$ (15*R*=say 60)
$= 310$ ft.
$\frac{CP}{T} = \frac{1 \cdot 63}{310}$
$= \cdot 0053''$ per ft.

This gives the following table of capacities :—

Size	lb.×40	=	B.T.U.'s.
½″	50		2,000
¾″	150		6,000
1″	330		13,200
1¼″	600		24,000
1½″	980		39,200
2″	2,130		85,200

If there were extensive circulations at upper floors instead of only the one radiator shown, similar tables for the increased *CP* and different travel "*T*" should be taken out for each.

For the first approximation it is necessary to allocate a proportion of the mains to each radiator by estimation.

These vary generally between 10 per cent. and 33 per cent. of the radiator. In this example assume 25 per cent.

The effect of mains loss is to cool both flow to the radiator and the return from it, so that with a given temperature difference at the boiler, the radiators have to pass more water than their actual emission calls for.

This percentage is not equal for all the radiators but it will suffice for the for the first sizing.

Fig. 126 shows this addition made to each, and the totals back to the boiler.

From the table of capacities previously arrived at it is possible to insert the approximate sizes shown. Obviously the same table will not apply to the branch circuits, these having much shorter travel, but the sizes have been taken from this and will be corrected later.

Accurate method.—Now that the approximate sizes are known it is possible to calculate the heat loss from the mains section by section as follows :—

Section	Size	Length	Emission per ft. lagged	Total
A —B	2″	90′	30	2,700
B —C	1½″	60′	27	1,000(say)
C —D	1¼″	40′	25	1,000
D —E	1″	60′	20	1,200
B —B_1	1¼″	40′	25	1,000
B_1—B_2	1″	40′	20	800
C —C_1	1″	20′	20	400
D —D_1	1″	20′	20	400
				8,500

(Note : Total Radiation=42,000, Mains 8,500, Ratio =20%, not 25% as taken).

These mains losses may now be allocated to each radiator in proportion

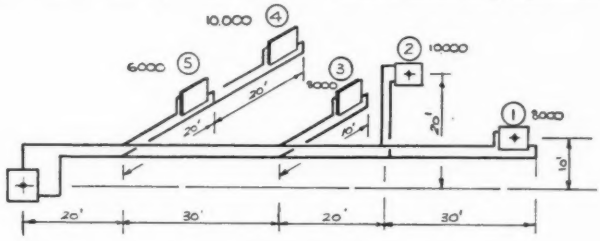


Figure 125.
Pipe Sizing—Example (c).

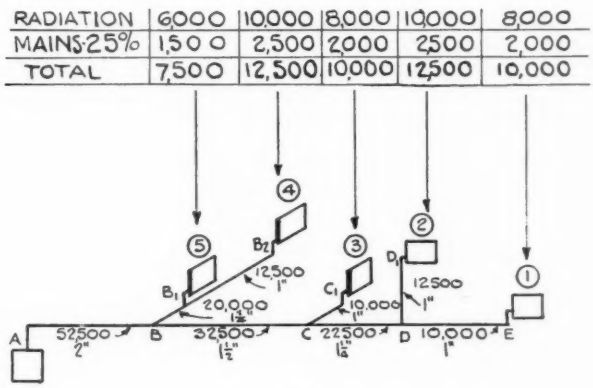


Figure 126.
Pipe Sizing—Example (c).

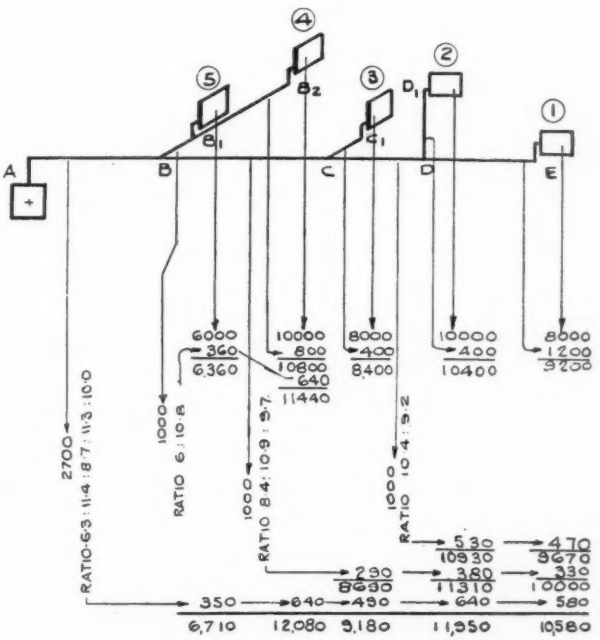


Figure 127.
Pipe Sizing—Example (c).

to the sums of the emissions, working from the end as Fig. 127.

The totals therefore appear as on Fig. 128.

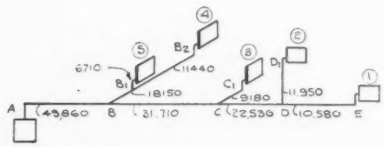


Figure 128. *Pipe Sizing—Example (c).*

A schedule is now constructed and the resistance of each section calculated. On this (see below), it is possible to make corrections to the sizes, so that the actual resistance of each circuit is brought as near to the available *CP* as possible.

A larger system would of course give much greater results for careful calculation than that taken in the above example.

Absolute accuracy of pipe sizing is in practice unattainable because of the limitation of commercial pipe sizes, the variation in their internal roughness and the fact that probably no system is ever installed exactly as designed. Further, it must be remembered that the resistance allowed for bends and fittings can be no more than an approximation unless the characteristics of every item are exactly determined beforehand.

It is, however, necessary to balance each circuit against its neighbour or short circuiting by the nearer branches will occur.

The best compromise therefore appears to be to size the pipes with fair accuracy in the manner described above, always leaving a small margin in hand to be finally adjusted by means of the lock shield regulating valves, which should be provided on every radiator.

If the piping is installed in accordance with the first approximate sizing only, the maximum economy will not be obtained and adjustment of the valves will tend to be critical.

EXAMPLE (*d*): TWO-PIPE DROP SYSTEM

From what has been said under example (*c*) the method of approach to this problem will be apparent.

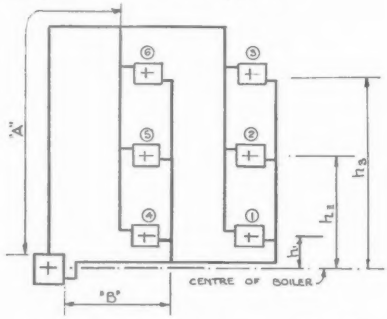


Figure 129. *Pipe Sizing—Example (d).*

The Index *CP* in Fig. 129 will be that to radiator No. 1 calculated for h_1. The travel T will be the same for all radiators on this drop.

On the basis of this $\frac{CP}{T}$ the mains will be sized.

Radiators 2 and 3 will have greater *CP*'s calculated from heights h_2 and h_3 respectively. This will enable their flow connections and accompanying return drops down to return from radiator 1 to be sized for a higher $\frac{CP}{T}$.

The second drop in this example, serving radiators 4, 5, and 6, is most easily sized by deducting from the relevant *CP* the resistance of mains A and B, already sized for the index circulation. This will give the portion to be absorbed in the drop itself, and from this the sizes may be more closely estimated on the first approximation.

For accurate sizing an exactly similar method may be employed as for case (*c*), each length of pipe being taken separately, and the resistances totalled against the *CP* for each radiator.

It will be noted that no question of "average height" arises as in the case of example (*b*).

EXAMPLE (*e*): IRREGULAR SYSTEM

The method of ascertaining the circulating pressure in this case is entirely different from that in the foregoing examples as the "*CP* per foot of height" method cannot be applied owing to the complication of the cool return lift back to the boiler. It is therefore necessary to return to first principles.

In Fig. 130 all the first floor radiators are assumed to be concentrated in one R_1, and all the ground floor in R_2.

The circulating pressure is that caused

Section	Size	Length (incl R)	B.T.U.	lbs. = B.T.U./40	Res/ft. (Table XXXIX)	Total Res. (loss×res.ft.)	C.P. available inch water column
A—B	2″	~~139~~ 70	49,860	1,246	·0020	~~·25~~ ·14	Mains 2′ below
correction		1½″ Ret 60			·008	·48	Index rod
B—C	1½″	60	31,710	793	·0037	·22	Revised H = (10×8)+(8×2·5)= 10·5 9·5 ft.
C—D	1¼″	40	22,530	563	·0047	·19	
D—E	1″	80	10,580	264	·0035	·29	C.P. = 9·5×·163
		[310 = T]				~~·95~~ 1·31	= 1·60
						(surplus·29)	
Branches B—B_1		~~1¼″~~ 50	20,000	500	~~·004~~ ·012	~~·20~~ ·60	
(correction		1″					
B_1—B_2	1″	50	12,500	312	·005	·25	
add A—B	as	above				·62	
						1·47	1·6
						(surplus·13)	
Rad. B_1	Connection ¾″	10′	6,710	158	·006	·06	
A—B_1						1·22	
						1·28	1·6
						(surplus·32)	
C—C_1	~~1″~~	25	9,180	230	~~·003~~ ·012	~~·08~~ ·30	
A—C	¾″					·84	
						1·14	1·6
						(surplus·46)	
D—D_1	~~1″~~	25′	11,950	300	·0045	~~·11~~ 1·82	1·6
Correction	1″	13′			·14	·21	+10×·163 = 1·63
	¾″	12′			·018		3·23
A—D						1·03	
						3·06	
						(surplus·17)	

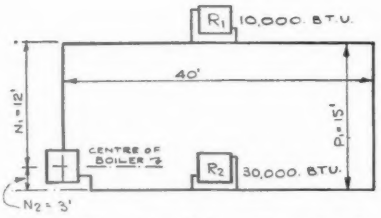


Figure 130. *Pipe Sizing—Example (e).*

by the difference of weight of the columns P_1 and N_1+N_2, thus

$$CP=P_1-(N_1+N_2)$$

The temperatures of N_1 and N_2 are known (say 180 deg. and 140 deg.), that of P_2 must be calculated, it being at some point between proportional to the relative total emissions at the top and at the bottom, thus :—

Top.

Assume pipe is 2½ in., mean water 170 deg., air 60 deg., difference 110 deg., emission 174 B.T.U.'s per ft.× 40 ft.	6,960
Radiators	10,000
say	17,000 B.T.U.'s

Bottom.

Pipe 2½ in., mean water 150 deg., air 60 deg., difference 90 deg., emission 135 B.T.U.'s per ft. × 40 ft.	5,400
Radiators	30,000
	35,400 B.T.U.'s

(The emission from riser and drop is ignored as before.)

$$\text{Temperature of } P_1 = 180-\left(\frac{40\times 17{,}000}{17{,}000+35{,}400}\right)$$
$$= 180-13$$
$$= 167 \text{ deg.}$$

It is now possible to evaluate

$$CP=P_1-(N_1+N_2)$$

by taking out the heights and densities (table XXXVII) as follows :—

$$CP=(15\times 60\cdot 850)-\{(12\times 60\cdot 560)+(3\times 61\cdot 388)\}$$
$$=912\cdot 750-(726\cdot 720+184\cdot 164)$$
$$=1\cdot 866 \text{ lbs. per sq. in.}$$

Dividing by 5 (approx.) to convert to inches water column

$$=\cdot 37 \text{ in. water column}$$

Then

$$T=12+40+15+40+3+(10R \text{ at } 8=80)=190 \text{ ft.}$$

$$\frac{CP}{T}=\frac{\cdot 37}{190}=\cdot 0019 \text{ in. per ft.}$$

Total emission = 17,000+35,400 = 52,400	
+(risers and drop on 160 deg. water = 100 deg. diff.)	
30×154 .. .. .. =	4,620
say	57,000 B.T.U.'s

Reference to Table XXXIX shows that at ·0019 in. per ft.

2 in. passes 1,218 lb.
2½ in. ,, 2,233 lb.

The main must therefore be 2½ in., though, as this is considerably too large, a portion could be reduced to 2 in. Actually the increased size will allow a lower temperature drop than 40 deg., and the economy is not worth making. As it has so happened that 2½ in. was the size chosen in the first instance in determining the emission of the main, there is no need to revise this, though it would have been necessary otherwise.

The sizes of the radiator connections are determined independently, as for example (*a*), and again it must be remembered that the radiation surfaces require adjustment on account of the different temperatures of water with which they are supplied.

It will be appreciated that the above example is the simplest possible for this class of circulation, and in practice the numbers of positive and negative legs to be considered usually make the calculation of such systems somewhat laborious, particularly if there are a number of branches, each of which, it will be found, affects the main or index circuit.

LAW REPORT

Action by Mr. Philip M. Faraday against the Auctioneers and Estate Agents' Institute of the United Kingdom.

IN the Chancery Division recently, Mr. Justice Eve had before him an action by Mr. Philip Michael Faraday, surveyor, valuer and rating expert, of 77 Chancery Lane, against the Auctioneers and Estate Agents' Institute of the United Kingdom for a declaration that plaintiff had not violated one of the rules of the Institute and for an injunction to restrain the Institute or their council or officers from acting under a resolution purported to have been passed by the Council in December, 1934, and from suspending or expelling the plaintiff from membership.

Sir William Jowitt, K.C., Mr. L. Cohen, K.C., and Mr. F. Grant appeared for the plaintiff and Mr. Gavin Simonds, K.C., and Mr. Roger Turnbull for the Institute. Mr. Pearson held a watching brief.

The action raised a point of construction on the following article of the defendants' Articles of Association, viz. :

"No member shall establish or join either as principal or assistant any commercial firm or undertaking for the purposes of carrying on or assisting to carry on professional business as an adjunct to or in connection with the commercial business of such firm."

The resolution passed provided that unless certain things were done by the plaintiff he would be expelled from the Institute on a certain date.

Sir William Jowitt, in opening the case for the plaintiff, said his client sought to restrain the Institute from acting on the resolution expelling him from membership of the Institute, unless he conformed to certain stipulations. It was alleged that his client had been guilty of a breach of the rules of the Institute for this reason. There were a number of firms in London such as Harrods, Hamptons, Whiteleys, and others, who had an ordinary commercial business and attached to that business or run in connection with it, was an estate agency business. The case in question concerned Harrods. Plaintiff entered into an arrangement of this nature. At the time quinquennial valuations were coming along, which raised points of rating. The plaintiff was an expert on rating. Harrods were going to circularize their clients suggesting to them in connection with the quinquennial assessments that they might like to have Harrods services and stating that they had retained the services of the plaintiff. It was arranged that in cases in which they required plaintiff's services that Harrods should quote a fee to their client and that they and plaintiff should share the fee between them in certain proportions. All this amounted to was that there was a fee-sharing arrangement between Harrods and plaintiff.

The sole question was, was that arrangement or was it not contrary to the Articles of Association of the Institute? The article or rule in question had been a rule for a long long time. Hence the small point was whether it could be said that plaintiff had joined Harrods as an assistant. The penalty was suspension or expulsion.

Plaintiff conceived that he had in no sense broken the rule. The allegation was that his client had joined Harrods as an assistant. That was ridiculous, said Sir William Jowitt. His client was acting as an independent expert to give Harrods the benefit of his advice and services under certain conditions. Whether the Institute understood their rules he was not sure, commented Sir William. It was not suggested that plaintiff had done anything wrong. The sole question was, had he joined Harrods as an assistant?

Plaintiff's contention was that he had not been guilty of any breach of the Institute's rules, as he was only acting in an advisory capacity.

The plaintiff gave evidence and said he had only been in Harrods once in his life and they exercised no control over him in the performance of his work. He received no remuneration from Harrods apart from his fees, and the work that he did for Harrods, apart from his firm's work, was so trifling as to be almost negligible. He had suffered through the innuendo that he had been expelled from the Institute for breach of professional conduct and clients had raised the question seriously.

Cross-examined by Mr. Simonds, plaintiff agreed that the rule in question had been in force for many years and that an amendment to make it less rigorous had been rejected by a large majority.

Mr. Simonds, for the defendants, argued that the rule had been broken by the plaintiff in what he had done.

His Lordship, after legal argument, held that clearly plaintiff had broken the rules of the Institute, and he dismissed the action with costs.

Defendants agreed to suspend the order of expulsion pending an appeal to the Court of Appeal.

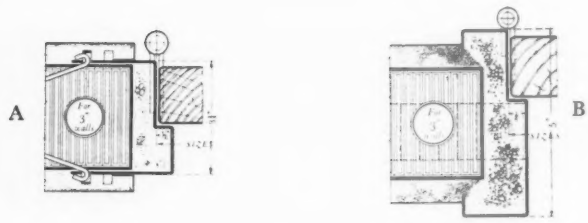
Manufacturers' Item

Messrs. J. H. Sankey & Co. have recently placed on the market a new colour finish for application to cement rendered or concrete walls.

Under the name of Permatint this product is supplied in the form of a powder which is mixed with water to a suitable consistency and then applied like distemper.

It is claimed that Permatint gives a durable finish of an artificial stone nature, that it is damp-resisting and washable and has no tendency to flake.

Permatint is available in three colours—white, cream and yellow, and its covering capacity is three to four yards per pound.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Steel Trim

I UNDERSTAND Messrs. Henry Hope and Sons have recently built a new factory for the production of pressed steel window sub-frames and door frames.

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The window sub-frames were described in these notes some months ago. The door frames are in grades A and B (see headpiece). Grade A frames are perforated on the returned edges to give a key for plaster, with an applied steel clinch which forms a non-cracking finish against the door jambs. In the case of grade B frames, plaster should be well flushed into cavity between frame and wall, and neatly struck down the returned face of the metal frame, as shown in the diagrams.

•

Frames are normally made to fit 2 in., 3 in., 4½ in. and 9 in. walls—these sizes excluding plaster. Depths of rebates are standardized to suit doors nominally 1½ in., 1¾ in. and 2 in. thick.

Several alternatives are shown in the manufacturers' catalogue No. 154, 1935.

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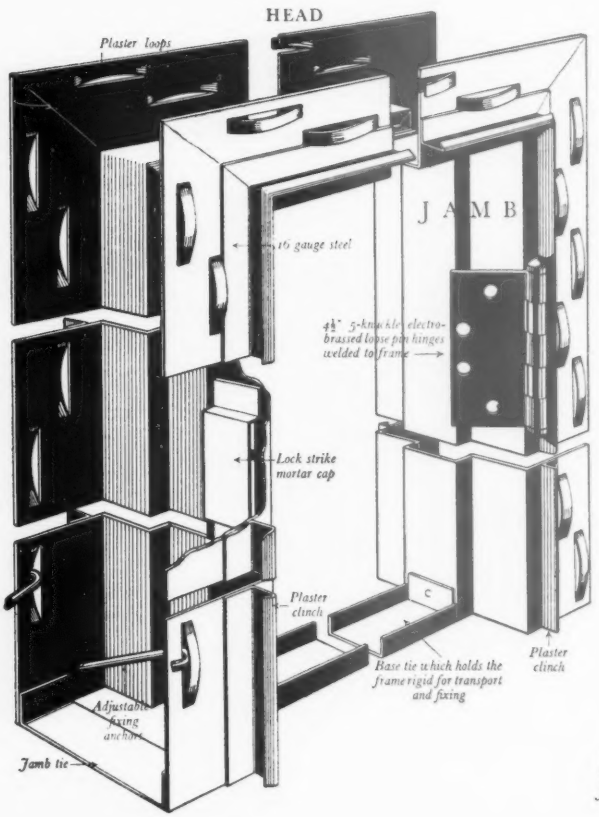
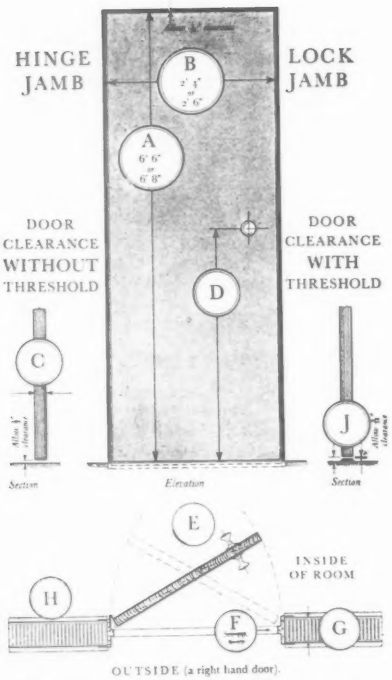
The following information should accompany an inquiry. The initial letters refer to diagrams reproduced here :—

A. Height of door frames.

B. Width of door frames.



Pressed steel door frame, Grade A.



Information required when ordering doors. (See accompanying note.)

C. Thickness of door.

D. Height from floor level to centre of door knob and relative position of lock or handle slots.

E. Whether door is hung left or right hand, the hand being given from outside (see diagram).

F. Thickness of wall or partition before plastering.

G. Overall thickness of partition.

H. Material and finish of wall or partition.

J. Whether threshold to be used ; if so, what height. (Thresholds are used when it is intended to use floor coverings.) Whether door hardware or locks should be included in quotations.

A plan showing door openings will avoid possible confusion.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Foundling Hospital, Berkhamsted, Herts (pages 45-52). General contractors, Walter Lawrence and Son, Ltd. Sub-contractors : Ames and Finnis, bricks and tiles ; L. G. Mouchel and Partners, reinforced concrete ; British Reinforced Concrete Co., Ltd., reinforced concrete ; Lawford Asphalte Co., Ltd., asphalte ; Bath and Portland Stone Firms, Ltd. and Hornton Quarries, Ltd., stonework ; "Perrytrav" (Fine Roach) for interior of Chapel ; South Western Stone Co., Ltd., Patent Impervious Stone and Construction Co., Ltd., artificial stonework ; Redpath Brown & Co., Ltd., structural steelwork ; Kleine Co., Ltd., fireproof floors ; H. W. Cullum & Co., Ltd., soundproof floors in Infirmary ; Electrical Installations, Ltd., electric lighting, heating, power, telephones, bells, fire alarm installation ;

Trussed Concrete Steel Co., Ltd., "Hy rib" metal lathing to ceilings; Rigby (London), Ltd., "Waterex" waterproofing; Hollis Bros. & Co., Ltd., woodblock flooring; Dunlop Rubber Co., Ltd., rubber flooring to corridors; Carter & Co., Ltd., wall and floor tiling; Thomas Elsley, Ltd., cast iron and lead rainwater heads; British-Challenge Glazing Co., Ltd., patent glazing; Bratt Colbran & Co., Ltd., stoves, grates and mantels; General Electric Co., Ltd., electric light fittings; Leeds Fireclay Co., Ltd., Pontifex and Emanuel, sanitary fittings; Crittall Manufacturing Co., Ltd., metal casements; Tucker and Edgar, electric light fittings; J. W. Gray and Sons, Ltd., lightning conductors; Rhodes Chains, Ltd., sash chains and pulleys; Lockerbie and Wilkinson, Ltd., cloakroom fittings; Benham and Son, Ltd., cooking apparatus; New Destructor Co., Ltd., incinerator; Hitchins Flush Woodwork, Ltd., flush doors; J. L. Green and Vardy, Ltd., panelling to chapel porch, etc.; Gilbert Seale and Son, Ltd., carving; John Daymond and Son, Ltd., carving; Morris Singer Co., Ltd., ornamental metalwork; James Powell (Whitefriars), Ltd., stained and antique glass; May Acoustics, Ltd., "Sabinite" plaster in chapel; Celotex Co. of Gt. Britain, Ltd., "Acousti-Celotex" in bandroom; George Wimpey & Co., Ltd., road surfacing; Wainwright Paving and Construction Co., playground surfacing; Arthur Sanderson and Sons, Ltd., distempers and paints; Mander Bros., Ltd., distempers and paints; Wm. Douglas and Sons, Ltd., cold storage plant.

House at Bognor Regis (pages 55-56). General contractors, F. W. Hill (Bognor Regis), Ltd. Sub-contractors: Midhurst Brick Co., Ltd., bricks; Robert Adlard & Co., Ltd., tiles and roofing felt; Pugh Bros., Ltd., decorative glass; John and Phillips, Ltd., electric boilers; T. Baldwin, Ltd., electric wiring and bells; Troughton and Young, Ltd., electric light fixtures; Unity Heating, Ltd., electric Unity heaters; Leeds Fireclay Co., Ltd., sanitary fittings; Pirie-Parlanti Co., door furniture; Edghill (Casements), Ltd., casements and window furniture; Haskins, Ltd., rolling shutters to garage; Cement Marketing Co., Ltd., external plaster; Gypsum Mines, Ltd., internal plaster; Williamson Cliff, Ltd., floor tiling; Mac and Me, Ltd., textiles and furniture; Barnham Nurseries, shrubs and trees; Easiwork, Ltd., kitchen fittings; Peerless Kitchen Cabinets, Ltd., kitchen fittings; Synchronome Co., Ltd., electric clocks.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

ACTON. Plans passed by the Corporation: Factory extensions, Sunbeam Road, for Mr. T. Anders; factory, Minerva Road, for Wesley Estates, Ltd.; factory, Gorst Road, for Mr. F. E. Simpkins; factory extension, Park Road, for Messrs. Percy Pratt and Blount; works extensions, Victoria Road, for Messrs. Chamberlain and Willows.

BARKING. *Swimming Bath.* The Corporation has selected in Gale Street a site for the erection of a swimming bath and has instructed the borough engineer to proceed with the preparation of plans and estimates.

CAMBERWELL. *Dwellings.* The L.C.C. has accepted the tender £29,559 of Messrs. E. D. Winn & Co., Ltd., for the erection of 123 tenements at the Levant Street area, Camberwell.

EALING. *Hotel.* Messrs. Barclay Perkins, Ltd. are to erect an hotel (Park Royal Hotel) at Western Avenue. The architects are Messrs. Welch, Cachemaille-Day and Lander.

EAST MOSELEY. *Shops.* The London Co-operative Society has secured a site at Walton Road for the erection of a range of shops.

FINCHLEY. *Flats.* Messrs. Rawlins, Culver & Co. are to prepare a scheme for the erection of flats on the Arden estate, Regents Park Road, Finchley.

GREENWICH. *Dwellings.* The L.C.C. has accepted the tender £25,654 of Messrs. Henry Boot and Sons, Ltd., for 263 tenements at the Thames Street area, Greenwich.

HAMMERSMITH HOSPITAL. The L.C.C. has accepted the tender £24,186 of Messrs. Bovis, Ltd., for the erection of a ward block at Hammersmith Hospital.

HARROW. *Shops and Flats.* Thirty-two flats, eight shops and 14 lock-up garages are to be erected by Messrs. Roberts and Reeves, on a site between Cambrose Avenue and Bacon Lane.

HAYES. *Houses.* The U.D.C. has approved lay-out plans submitted by Taylor Woodrow (Estates), Ltd., 10 Grange Park, for 122 houses proposed to be erected on the Cranford Park Estate; and plans for the London Co-operative Society, who propose to erect shops, flats and stores at Uxbridge Road.

HOUNSLOW. *Houses.* The B.C. has approved plans as follows: P. Chase Gardener & Co., 40 houses off Wellington Road; and 20 flats at Eversley Crescent; G. G. Wornum, F.R.I.B.A. 16 garages, corner of Church and Osterley Roads.

IVER (Bucks). *Houses and Flats.* Messrs. H. Boot (Garden Estates), Ltd., are to erect 160 houses at Iver; and Mr. E. Cotton proposes to erect two blocks of flats at Iver Heath. Plans have been approved.

KINGSTON-ON-THAMES. *Shops.* The London Co-operative Society are to erect shops on the site of 175-177 King's Road.

LAMBETH. *Dwellings.* The L.C.C. has accepted the tender £33,972 of the Unit Construction Co., Ltd., for the erection of dwellings on the Tyers Street area, Lambeth.

LEWISHAM. *Baths.* The Borough Council recommends the tender £58,984 of Messrs. Galbraith Bros., Ltd., for the erection of baths and library at Durham Hill, Downham.

MARYLEBONE. *Crematorium.* The Borough Council has approved plans by Sir Edwin Cooper for the construction of a crematorium at the cemetery at a cost of £30,000.

NORTHOLT. *Estate Development.* The T.C. has approved amended plans submitted by Messrs. Henry Boot, Ltd., for the development of the Lime Trees Estate. The town planning scheme is to be amended to permit the provision of a shopping centre and the erection of a cinema, hall and church. The company are to convey to the Council land for an open space, allotments and a school site, free of cost.

PADDINGTON. *Flats.* The L.C.C. has relaxed reinforced concrete regulations in connection with the erection of flats in Ladbroke Grove by Messrs. L. G. Mouchel and Partners, Ltd.

POPLAR. *Dwellings.* The L.C.C. has accepted the tender £17,397 of Messrs. A. E. Symes, Ltd., for the erection of 34 tenements at West Ferry Estate, Poplar.

ST. PANCRAS. *Hospital.* The governors of Elizabeth Garrett Anderson Hospital have prepared plans for extending the premises in Euston Road.

SOUTHALL. *Shops.* A prominent site has been secured by the London Co-operative Society at the Broadway for future development.

STAMFORD HILL. *Dwellings.* The L.C.C. has accepted the tender £34,178 of Messrs. A. T. Rowley (London), Ltd., for the erection of dwellings on the Stamford Hill Estate.

STEPNEY. *Dwellings.* The L.C.C. has accepted the tender, £24,942, of Messrs. Rowley Bros., Ltd., for the erection of 62 tenements at Old Castle Street.

STEPNEY. *Rehousing scheme.* The Council has acquired a site in East India Dock Road for a rehousing scheme.

STOKE NEWINGTON. *Flats.* The B.C. has appointed Messrs. Howes and Jackman, to prepare a scheme for the erection of further flats at Lordship Terrace.

STREATHAM. *School.* The L.C.C. is to erect a central school for 400 on the Furzedown site, Streatham.

UXBRIDGE. *Houses.* The U.D.C. has approved plans by A. E. Green, Ltd., for the erection of 30 houses.

WALWORTH. *Dwellings.* The L.C.C. is to erect further tenements on the Browning estate, Walworth, at a cost of £31,000.

WESTMINSTER. *Welfare Centre.* The Council has approved plans by Mr. F. Milton Harvey for the erection of a maternity and child welfare centre and day nursery at Bessborough Street at an estimated cost of £45,000.

WESTMINSTER. *Central Depot.* The Council is to erect a new central depot for the Highways Dept. in Gatliff Road at a cost of £181,765.

WESTMINSTER. *Acquisition of Property.* In connection with the south side development scheme between Westminster and Waterloo bridges, the L.C.C. has made arrangements with the Ecclesiastical Commissioners for the acquisition of property at a cost of £875,000.

WOOD GREEN. *Houses.* The Totteridge Lane Freehold Land Co., Ltd., is to develop 13 acres at Devonshire Hill, Wood Green, by the erection of 160 houses.

WOOLWICH. *Dwellings.* The Council is to erect a further 264 tenements on the Middle Park estate at an estimated cost of £30,257.

SOUTHERN COUNTIES

EASTBOURNE. *Cinema, etc.* On behalf of Mr. J. A. Bacon plans have been prepared by Messrs. P. D. Stonham and Son for the erection of a cinema, shops and flats in Green Street.

EASTBOURNE. *Shelter.* The Corporation is to provide shelter accommodation at Beachy Head, at a cost of £3,787.

DOVER. *Houses, etc.* The Corporation has accepted the tender £43,319 of Messrs. Lewis and Sons, Dover, for the erection of 162 houses and eight flats on the St. Radigurd's Road housing estate.

DUNSTABLE. *School.* The tender £16,100 of Messrs. Fleet and Roberts, Ltd., for the erection of an elementary school has been accepted.

OXFORD. *Aerodrome.* The Corporation is purchasing 280,000 acres at Lower Campfield Farm, Kidlington, for the proposed civic aerodrome.

SURREY. *Schools.* At a meeting of the Surrey C.C. it was revealed that the five-year higher education development programme consists of the following new buildings: Guildford Technical College, £99,000; Sutton Girls' School, £40,000; Kingston Tiffin Girls' School, £35,000; Farnham Girls', £27,000; Epsom Boys', £35,000; Purley Girls', £35,000; and St. Helier No. 5, £35,000. Extensions to various schools, it was reported, would cost a further £75,000.

WOKING. *Station.* The Southern Railway Company propose to rebuild Woking Station at an estimated cost of £196,000.

MIDLAND COUNTIES

BIRMINGHAM. *Showroom.* The Corporation is to erect gas showrooms and stores at Bristol Road, at a cost of £7,000.

DUDLEY. *Zoo.* Messrs. Tecton, London, have now been definitely appointed architects for the Dudley Zoo.

DUDLEY. *Houses.* The Corporation has accepted the tender £41,134 of Messrs. Henry Boot and Son, Ltd., for the erection of 160 houses on the Foxyard Estate.

WORCESTER. *Houses, etc.* The Corporation has recommended the tender £22,200 of Messrs. E. L. Lewis for the erection of 52 houses on the Martley Road.

NORTHERN COUNTIES

BIRKENHEAD. *Walker Park.* The Corporation has approved plans for the lay-out of the Walker Park estate for recreation purposes at a cost of £14,000.

BRADFORD. *School.* Bradford Education Committee is to lend £25,000 to the governors of the Girls' Grammar School for the erection of new premises at Lady Royd.

GRIMSBY. *Houses.* The Corporation recommends the tender £29,538 of Messrs. C. S. Edwards & Co. for the erection of 100 houses at Nunsthorpe.

GRIMSBY. *School.* Grimsby Education Committee is to erect an elementary school for 800 in Macaulay Street.

LEEDS. *Baths.* The Corporation is considering the erection of new central baths to

(*Continued on page xxxiv.*)

RATES OF WAGES

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

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

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

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

CURRENT PRICES

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

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	6
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
½" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
½" Channel bends	each	2	9	4	6
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	6
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	6	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

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

MASON

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

SLATER AND TILER

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

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

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1

Deal floorings,	Sq.	s.	d.
½"	"	18	6
¾"	"	1	6
1"	"	1	2
1¼"	"	1	5
1½"	"	1	10
Deal matchings ½"	"	14	0
¾"	"	15	6
1"	"	1	4
Rough boarding ½"	"	16	0
¾"	"	18	0
1"	"	1	6
1¼"	"		0

Plywood, per ft. sup. Thickness	¼"	⅜"	½"	¾"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

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

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

Discounts:

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

FITTINGS.			
Gas	37½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	11	9
Mild steel reinforcing rods, ½"	"	9	6
" " ⅝"	"	9	3
" " ¾"	"	9	0
" " ⅞"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6
" " 1¾"	"	8	6
" " 2"	"	8	6

		4" s.	4" d.	6" s.	6" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8		10	
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"		—	6	3
Heads	"	4	0	5	6
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

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

PLASTERER

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

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			F.S.	2½
" " 26 oz. " "			"	3
Flemish, Arctic, Figures (white)*			"	7
Blazoned glasses			"	2 6
Reeded; Cross Reeded			"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			"	6
Crown sheet glass (n/e 12 in. x 10 in.)			"	2 0
Flashed opals (white and coloured)	1	0 and	2	0
¼" rough cast; rolled plate			"	5½
¼" wired cast; wired rolled			"	9½
¼" Georgian wired cast			"	11
¼" Polished plate, n/e 1 ft.			" †10 to ‡1	1
" " 2			" †1 2 " ‡1	4
" " 4			" †2 3 " ‡2	6
" " 8			" †2 9 " ‡3	2
" " 20			" †3 7 " ‡4	2
" " 45			" †3 11 " ‡4	7
" " 100			" †5 0 " ‡5	7
Vita glass, sheet, n/e 1 ft.			"	1 0
" " " 2 ft.			"	1 3
" " " over 2 ft.			"	1 9
" " plate, n/e 1 ft.			"	1 6
" " " 2 ft.			"	3 0
" " " 5 ft.			"	4 0
" " " 7 ft.			"	5 0
" " " 15 ft.			"	6 0
" " " over 15 ft.			"	7 6
"Calorex" sheet 21 oz., and 32 oz.	2	6 and	3	6
" rough cast ¼" and ½"		8½	"	1 0
Putty, linseed oil			lb.	3

* *Colours, 1d. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

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

CURRENT PRICES FOR MEASURED WORK

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

EXCAVATOR AND CONCRETOR

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

DRAINLAYER

		4" s. d.	5" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facings and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

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

MASON

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

SLATER AND TILER

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

CARPENTER AND JOINER

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

CARPENTER AND JOINER—*continued*

		s. d.
1¼" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅜" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1¾" deal four-panel square, both sides, door	F.S.	2 0
2" " " "	"	2 8
1¾" , but moulded both sides	"	2 4
2" " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " "	"	1 4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1¼" deal moulded wall strings	"	2 1
1¼" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1¾" × 1¾" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

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

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	"	1 16 6
Do. in covering to turrets	"	2 4 0
Do. in soakers	"	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

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

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

PLASTERER AND TILING

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

GLAZIER

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

PAINTER

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

Building News—(Continued from page 69)

replace those in Union Street which it is suggested should be demolished to make room for market developments.

LEEDS. *Building Site.* The Corporation has sold a building site in Town Street, Armley, for £1,190 to Messrs. Dudley Bros. and Co.

LEEDS. *Houses, etc.* The following tenders have been accepted by the Corporation: Tarran Industries, Ltd., £300,300 for 1,106 houses and flats on the Belle Isle Estate, Middleton, and Messrs. Paul Rhodes, Ltd., £1,660 for two doctors' houses and £4,950 for six shops and houses.

LEEDS. *Houses, etc.* The Corporation has approved the layout of land on the Moorton Estate for the erection of 2,528 houses and flats and 20 shops and is to obtain tenders for their erection.

BUILDING CONTRACTS OPEN

Unless the contrary is expressly stated, all deposits required for bills of quantities, etc., are returned on receipt of bona-fide tenders. The words "Fair Wages Clause," inserted in certain paragraphs, signify that persons tendering must conform to a fair wages clause in the contract, which requires them to pay the rates of wages current in the district. Application for plans and particulars should be made to the address given at the end of each entry.—ED., A.J.

EDINBURGH: TENEMENTS

July 13.—Tenders for separate undertakings for the following works (1) Demolition, excavator, mason, brick and concrete; (2) carpenter and joiner; (3) plumber; (4) plaster and cement; (5) slate and roughcast; (6) glazier; (7) paint—for proposed new tenements to be erected at Gifford Park. Forms of tender from E. J. MacRae, City Architect, City Chambers. Tenders to D. Robertson, town clerk, City Chambers, Edinburgh.

ENFIELD: FIRE STATION

July 15.—Erection of a headquarters fire station, officers' and men's quarters, workshops, tower, etc. Forms of tender from H. R. Crabb, engineer and surveyor, "Percy House," 7 Little Park Gardens, Enfield. Tenders to K. Tansley, clerk, Public Offices, Enfield. Deposit £5 5s.

HEMEL HEMPSTEAD: COTTAGES

July 15.—Erection of 10 cottages, six at Flamstead and four at Markyate. Forms of tender from the architect, T. H. Lightbody, Broadway Offices, Hemel Hempstead, Herts. Tenders to L. F. Smeathman, clerk, Broadway Offices, Hemel Hempstead, Herts. Deposit £3 3s.

LIVERPOOL: SCHOOL

July 15.—Erection of proposed new Council school at Lambeth Road, Liverpool, for the Corporation. Form of tender and quantities from the Land Steward and Surveyor. Tenders to W. Moon, town clerk, Municipal Buildings, Liverpool. Deposit £5 5s.

LIVERPOOL: SCHOOL

July 15.—Erection of proposed new Council school at Booker Avenue, Mossley Hill, Liverpool. Forms of tender from the Land Steward. Tenders to W. Moon, town clerk, Municipal Buildings, Liverpool. Deposit £2 2s.

LONDON (ISLINGTON): DWELLINGS

July 15.—Erection of 123 tenements on a site at the corner of Waritersville Road and Higheroft Road. Form of tender from E. C. P. Monson, architect, Finsbury Pavement House, 120 Moorgate, E.C.2. Tenders to the Town Clerk, Town Hall, Upper Street, N.1. Deposit £3.

SUNDERLAND: FLOORS

July 15.—Supply and erection of reinforced concrete floors for offices of Electricity Undertaking. Forms of tender from Electrical Engineer and General Manager, Electricity Offices, Running Street, Sunderland. Tenders to the Town Clerk, Town Hall, Sunderland. Deposit £1.

TIPTON: HOUSES

July 15.—Erection of 25 houses on Alexandra Road site, four four-bedroom type houses in pairs; 25 three-bedroom type houses in blocks of four, three and two. Forms of tender from Charles R. Gallie, Housing Director, Municipal Buildings, Sedgley Road West, Tipton. Tenders to Kenneth W. Madin, Housing Department, Municipal Buildings, Sedgley Road, West Tipton. Deposit £2 2s.

DORCHESTER: CHILDREN'S HOME

July 16.—Erection of a children's home for the Dorset C.C. B. C. Roe, Deputy Clerk, County Offices, Dorchester. Deposit £2 2s.

RICHMOND: REDECORATIONS

July 16.—Redecorations and minor repairs to seven schools for the E.C. Forms of tender, etc., from Borough Engineer, Hotham House, Heron Court, Richmond. Tenders to G. Cowell, education secretary, Education Offices, Parkshot, Richmond, Surrey. Deposit £1.

SHEFFIELD: HOUSES

July 16.—Erection of 348 non-parlour type houses on the Arbourthorne Estate, Building Scheme No. 7. Tenders to "Arbourthorne Estate Scheme No. 7," Town Clerk, Town Hall, Sheffield, 1. Deposit £2.

BLACKPOOL: STORES

July 17.—Supply and erection of steel-framed general stores near Bispham Station. Forms of tender from Borough Surveyor. Tenders to "Tender for General Stores, Bispham Highway Depot." D. L. Harbottle, Town Clerk, Town Hall, Blackpool.

LIVERPOOL: DWELLINGS

July 17.—Erection of 66 flats on the Highfield Street site for the Housing Committee. Forms of tender, etc., from Director of Housing, Municipal Annexe, Dale Street, Liverpool. Tenders to W. Moon, town clerk, Municipal Buildings, Dale Street, Liverpool. Deposit £2 2s.

LIVERPOOL: HOUSES

July 17.—Erection of 204 parlour and non-parlour type houses on the Longview Farm (Knowsley) Estate, Huyton. Forms of tender from Director of Housing, Municipal Annexe, Dale Street, Liverpool. Tenders to Longview Farm (Knowsley) Estate, Huyton. Deposit £1 1s.

NORTHFLEET: HOUSES

July 17.—Erection of 28 houses, for the U.D.C. J. A. Mitchell, Surveyor, Council Offices, Northfleet. Deposit £5.

ESSEX: SCHOOLS

July 18.—Erection of (1) Woodford proposed Council senior school and (2) enlargement of Romford-Havirney Road Council School. Forms of tender for (1) from E. C. Edgar, Education Office, Loughton; (2) from P. B. Tinker, 90 Eastern Road, Romford. Tenders to J. Stuart, county architect, County Hall, Chelmsford. Deposit of £2 2s. in each case to H. W. Collis, county accountant, County Hall, Chelmsford.

LONDON (WILLESDEN): ALTERATIONS

July 18.—Alterations and additions to the Salusbury Road Council School, for the T.C. F. Wilkinson, Town Hall, Dyne Road, Kilburn, N.W.6. Deposit £10 10s.

NEATH: HOSPITAL

July 18.—Erection of Isolation Hospital at Tonna-Uchat, Neath. Forms of tender from H. A. Clarke, Gwyn Hall, Neath. Tenders, with priced-out bill of quantities, to A. E. I. Curtis and T. D. Windsor Williams, joint clerks, 28 Queen Street, Neath. Deposit £5 5s.

BIRKENHEAD: LIBRARY

July 20.—Erection of a new branch library, Upton. Forms of tender from B. Robinson, borough engineer and surveyor, Town Hall, Birkenhead. Tenders to E. W. Tame, town clerk, Town Hall, Birkenhead. Deposit £2 2s.

DEVIZES: HOUSES

July 20.—Erection of 20 houses on the 40 acre site. A. W. Jakeway, Borough Surveyor, Town Hall, Devizes. Deposit £2 2s.

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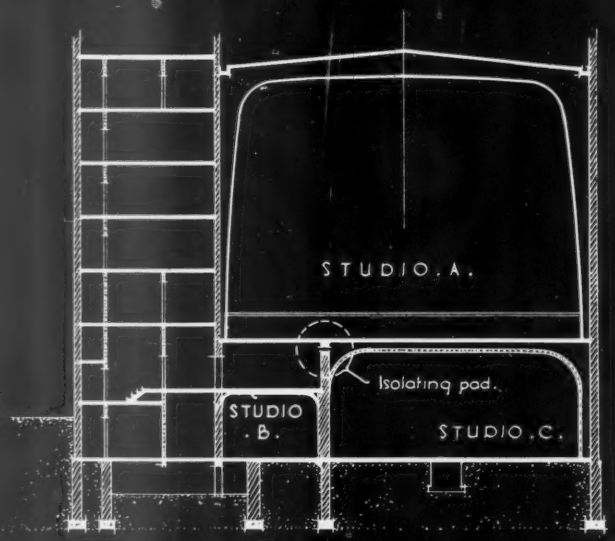
SOUND-ELIMINATION IN BUILDINGS :

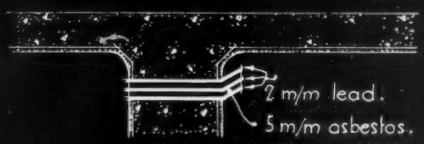


SECTION THROUGH STUDIOS.

ISOLATION OF SOUND BY LEAD-ASBESTOS PADS.

The section at left shows an example of three studios A, B & C in direct acoustic communication. Due to various constructional considerations the dividing wall between studios B and C supports the floor of Studio A, and would transfer the sounds from any one hall directly into the other two.

Acoustic isolation without interference with the weight-carrying capacity of the dividing wall is obtained by the insertion of a lead-asbestos pad where shown.



DETAIL OF ISOLATOR PAD.

TABLE GIVING THE SOUND REDUCTION FACTORS OF VARIOUS BUILDING MATERIALS.

Figures are compiled from tests by the Conservatoire des Arts et Métiers, under the direction of M. Cellerier.

MATERIAL :	THICKNESS, in m/m.	REDUCTION in decibels.
Cork pieces without agglutinant,	50.	8·6.
Pumice concrete,	84.	15·0.
Kelp,	33.	19·3.
Pure cork,	51.	26·6.
Fibrous mineral lead wool, 'banroc' & perforated sheet iron,	64.	27·0.
Cellular concrete,	48.	32·3.
Vegetable fibre impregnated with magnesium concrete, coated with concrete on both sides,	120.	36·0.
Wood fibre impregnated with magnesium concrete, coated with plaster on both sides,	137.	36·7.
Cork lumps, coated with plaster both sides,	76.	37·4.
Cement and pumice mass of greyish colour,	32.	38·0.
do. do. do. ,	52.	39·3.
do. do. do. ,	82.	44·6.
Oak,	22.	33·5.
Plaster square,	54.	33·5.
Bricks with plaster coating of 1 c/m on each side,	80.	36·4.
Plaster square,	60.	38·0.
Hollow bricks of 8 c/m plastered (1 c/m plaster on each side),	100.	41·7.
Concrete with plaster coating of 1 c/m on each side,	60.	43·0.
Lead sheet 1 m/m thick,	1.	35·0.
Lead sheet 2 m/m thick,	2.	39·0.

Information from the Lead Sheet & Pipe Development Council.

INFORMATION SHEET : THE USES OF LEAD IN BUILDING CONSTRUCTION

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

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 235 •

LEAD

This Sheet shows a method of preventing sound transmission in buildings by the utilisation of correctly placed lead asbestos isolating pads in the path of the sounds.

The sound which strikes against a wall is partly absorbed by the wall itself, partly reflected at its surface, and the remaining part is transmitted through the wall. The extreme cases are represented by a highly porous wall, which absorbs and does not reflect, and by a very hard smooth wall, which reflects but does not absorb.

Lead is in the category of a surface which absorbs very little and reflects very highly. In contradistinction to most of the common metals, its lack of elasticity is such that the lead sheet does not vibrate under the impact of a rush of sound, and consequently there are no secondary vibrations. It is obvious that, by combining a porous material with the lead, this would act as a good absorber, so that the result would be that the non-absorbed sound will be reflected by the lead, or else the sound which had actually been able to pass through the lead will be absorbed by the porous material, and, generally speaking, there will be a series of absorptions and reflections in succession, which will deaden the sound.

The figures given in the table on this Sheet represent the reduction of sound transmission in decibels obtained by the use of various building materials. In the case of the sheet lead, the figures are those obtained from tests on pieces 50 by 50 cm., and 1 and 2 mm. in thickness.

The table below sets out the equivalent value in decibel units of various familiar noises.

	Decibels	
Unbearable ..	120	The limit that can be borne by the ear.
	110	Motor-cycle with open exhaust.
Very noisy ..	100	Riveting.
	90	Pneumatic hammers.
	80	Tube trains at peak of traffic.
Noisy ..	70	A London street with moderate traffic. Typewriter.
Noisy ..	60	A railway wagon. An unsilenced ventilator.
Medium ..	50	Ordinary conversation.
	40	A room insufficiently closed in an average thoroughfare.
Quiet ..	30	Noises in quiet street.
	20	Low conversation.
Very quiet ..	10	Well closed room in quiet street.
		Threshold of audibility.

Qualified opinion recognises that efforts towards a reduction of sound transmission should yield a reduction of at least :

60-70 decibels for outside walls.
30-40 ,, ,, inside ,,
50-60 ,, ,, floors.

In other words, in a street with medium traffic a reduction from 70 to 10 decibels is required, which gives the possibility of complete rest.

Sound transmission tests through a lead sheet of 1 mm. thickness, carried out at the Conservatoire des Arts et Metiers on December 1, 1934.

Frequency	Intensity of the source of sound	Reduction in decibels
128	Low	—31
	Medium	—31
	Loud	—32
435	Low	—37
	Medium	—37
	Loud	—37
768	Low	—36
	Medium	—36
	Loud	—36

Same tests through a lead sheet of 2 mm. thickness.

Frequency	Intensity of sound source	Reduction in decibels
128	Low	—37
	Medium	—37
	Loud	—37
435	Low	—37
	Medium	—37
	Loud	—37
768	Low	—42
	Medium	—43
	Loud	—43

Previous Sheets of this series were Nos. 148, 149, 157, 161, 167, 182, 195 and 207.

Issued by : The Lead Sheet and Pipe Development Council
Address : Golden Cross House, Duncannon Street, W.C.2
Telephone : Whitehall 3715

288.

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ROOF INSULATION ONLY :

COMPARATIVE EFFECTS ON FUEL CONSUMPTION & HEATING PLANT.

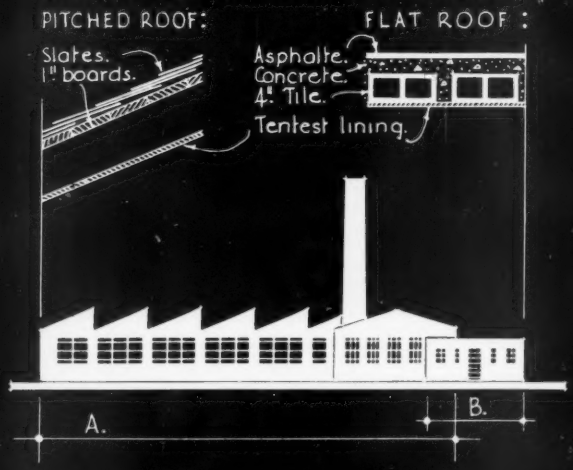
DATA USED IN THE CALCULATIONS:

Average EXTERNAL temperature, October 1st to April 30th ____ 43° F.
Minimum EXTERNAL temperature, ____ 30° F.

THERMAL CONDUCTIVITY (B.T.Us per hour per sq. ft. per °F. for 1" of thickness)
Tentest (N.P.L. test.) ____ 0.38

TRANSMISSION COEFFICIENTS:
Pitched roof of slates on 1" rough boarding. ____ 0.56
ditto. with 5/8" Tentest lining. ____ 0.23
Flat roof of 4" hollow tile with concrete and asphalte cover. ____ 0.4
ditto. with 5/8" Tentest lining. ____ 0.24

Diagram showing the sections A & B and the roof construction considered in this analysis.



ANALYSIS OF TEMPERATURE REQUIREMENTS:

SECTION OF BUILDING	TYPE OF ROOF	ROOF CONSTRUCTION	†SQ. FEET OF ROOF INSULATION	AVERAGE HEIGHT ABOVE FLOOR	DITTO ABOVE BREATHING LINE (5' 0")	TEMP. AT BREATHING LINE	2% RISE FOR EACH FOOT OF HEIGHT	AVERAGE TEMP. AT ROOF	TEMP. DIFF. INTERNAL & EXTERNAL.	
									max.	av.
A.	Pitched.	See diagrams above.	20,000.	22 Feet.	17 Feet.	55° F.	19°F.	74° F.	44°F.	31°F.
B.	Flat.		3,000.	10 Feet.	5 Feet.	62° F.	6°F.	68° F.	38°F.	25°F.

† figures given represent total unglazed area of the roof.

NOTE : An annual heating period of 5,000 hours has been assumed (October 1st to April 30th) with an effective heating capacity of 6000. B.T.Us per pound of fuel and a heat output from hotwater pipes and radiators of 160 B.T.Us. per hour per square foot.

ANALYSIS OF INSULATION :

SECTION A			SECTION B.	
UNLINED.	5/8" TENTEST.		5/8" TENTEST.	UNLINED.
●	£. s. d. 199. 1. 6	CAPITAL COST OF ROOF INSULATION, Tentest at 1/9½ d. per sq. yard for 20,000 square feet.	£. s. d. 29. 17. 3.	●
129·16	53·05	ANNUAL FUEL CONSUMPTION, in tons of coal.	6·7 ~~11·16~~	11·16 ~~6·7~~
£ s. d. 161. 9. 0.	£. s. d. 66. 6. 3.	VALUE OF FUEL CONSUMED, at 25/- a ton.	£. s. d. 8. 7. 6. ~~13. 19. 0.~~	£. s. d. 13. 19. 0. ~~8. 7. 6.~~
●	£. s. d. 95. 2. 9.	SAVING IN COST OF FUEL PER YEAR, over unlined roof	£. s. d. 5. 11. 6.	●
£. s. d. 693. 0. 0.	£. s. d. 284. 12. 6	CAPITAL COST OF HEATING INSTALLATION, at 4/6d. per sq. ft. of heating surface.	£. s. d. 38. 9. 6. ~~64. 2. 6.~~	£. s. d. 64. 2. 6. ~~38. 9. 6.~~
●	£. s. d. 408. 7. 6.	SAVING IN CAPITAL COST OF ABOVE, over unlined roof.	£. s. d. 25. 13. 0.	●

Information from the Tentest Fibre Board Co. Ltd. (3.)

INFORMATION SHEET : COMPARATIVE THERMAL INSULATION OF BUILDINGS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oscar A. Bayne

Supplement to THE ARCHITECTS' JOURNAL for August 1, 1935

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INFORMATION SHEET

• 236 REVISED •

Cancelling 236, published July 11, 1935

THERMAL INSULATION

Product : Tentest Fibre Board

General :

This is the third of a series of Sheets in which the insulating value of various forms of construction are being analysed.

For this purpose a common type of building has been taken ; a factory having a small office block and a larger workshop.

This typical building forms the basis on which all Sheets are calculated ; the analysis given on one Sheet is therefore comparable with those given on any other Sheet.

As will be seen on this Sheet, only the roofs of the buildings are dealt with, as it is intended to analyse in this way various types of roof construction, and, separately, various types of wall construction.

This method, by separating entirely the calculations for the roof from those for the walls, will allow the figures for any type of roof to be used in conjunction with the figures for any type of wall, in order to determine the combined effect.

Basis of Calculation :

The figures used as the basis of these calculations are set out on the face of this Sheet, and normal practice and figures have been followed throughout.

Average Temperature of Roof :

The temperature of the air at the roof increases with the height of the roof by 2 per cent. for each foot of height above the breathing line.

Annual Fuel Consumption :

The fuel consumptions given are based on the calculations given in the tables opposite.

Lining :

It will be noticed that in giving the cost of insulation, variations in the cost of fixing have not been taken into account, the price given being the cost of the material itself.

Previous Sheets :

The previous Sheets of this series were Nos. 220 and 230.

Information from : The Tentest Fibre Board Co., Ltd.

Address : Astor House, Aldwych, London, W.C.2

Telephone : Holborn 8018

Fuel Consumption for One Fuel-Year

$$\text{Fuel Consumption in tons} = \frac{\text{Area in sq. ft.} \times \text{Transmission Coeff.} \times \text{Average Temp diff.} \times \text{hours per year.}}{\text{B.T.U. per lb. of fuel} \times 2{,}240}$$

Section A.

Pitched roof uninsulated ... $= \dfrac{20{,}000 \times 0{\cdot}56 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240} =$ 129·16 tons.

Pitched roof with ⅜" Tentest lining ... ... $= \dfrac{20{,}000 \times 0{\cdot}23 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240} =$ 53·05 tons.

Section B.

Flat concrete roof with 4" hollow tile and 1" asphalt ... $= \dfrac{3{,}000 \times 0{\cdot}40 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240} =$ 11·16 tons.

Flat roof, ditto, with ⅜" Tentest Lining ... ... $= \dfrac{3{,}000 \times 0{\cdot}24 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240} =$ 6·7 tons.

Capital cost of Heating Installation (calculated for the roof only).

$$\text{Capital Cost ... ...} = \frac{\text{Area in sq. ft.} \times \text{Transmission Coeff.} \times \text{Max. Temp. diff.} \times \text{cost per sq. ft.}}{\text{Heat output per sq. ft. radiation.}}$$

Section A.

Capital cost for pitched roof uninsulated ... ... $= \dfrac{20{,}000 \times 0{\cdot}56 \times 44 \times 4{\cdot}5}{160 \times 20} =$ £693 0 0

Capital cost for pitched roof with ⅜" Tentest lining ... $= \dfrac{120{,}000 \times 0{\cdot}23 \times 44 \times 4{\cdot}5}{160 \times 20} =$ £284 12 6

Section B.

Flat roof unlined ... ... $= \dfrac{3{,}000 \times 0{\cdot}40 \times 38 \times 4{\cdot}5}{160 \times 20} =$ £64 2 6

Flat roof with ⅜" Tentest lining $= \dfrac{3{,}000 \times 0{\cdot}24 \times 38 \times 4{\cdot}5}{160 \times 20} =$ £38 9 6