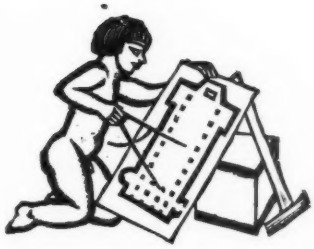
THE CHINESE EXHIBITION
AT THE ROYAL ACADEMY

TOP: a lacquer rice measure of the period of Chia-ching, Ming dynasty, A.D. 1368-1644 (lent by the Royal Scottish Museum Edinburgh); right, four-sided painted vase of the period of Yung-Ch'eng, Ch'ing dynasty, A.D. 1722-96 (lent by S. D. Winkworth).

THE CHINESE EXHIBITION

The Royal Academy International Exhibition of Chinese Art opened at Burlington House on Thursday last. The exhibition covers a very wide range of Chinese art, including bronzes, pottery, sculpture, painting, lacquer and caligraphy, and, historically, is representative of every major development from 1800 B.C. to A.D. 1800. On this and the preceding page are reproductions of some exhibits.

The photographs show: above, part of a scroll of silk, period of Wen T'ung (lent by the Metropolitan Museum of Art, New York); left, part of a twelve-fold "Caromandel" screen of the seventeenth century (lent by Mme. Langweil, Paris).



INAUGURAL ADDRESS—AND AFTER

IN the words of Mr. Percy Thomas on November 4, inaugural addresses are the established custom of the R.I.B.A. But there are several good reasons why the President's Address this year should be taken seriously—to look no higher or wider, self-interest of a very clamorous kind is one of them.

Mr. Thomas, first and foremost, practises in Wales, and is, therefore, in a better position than any Londoner could be to see in right perspective the problems of a national professional organization—to weigh the comparative prosperity of the new industrial south against the architect's opportunity in the " special areas."

In addition, the President owes his office, in great part, to his success in open competitions. And though many architects may feel that the existing competitive system has not yet realized its finest potentialities, all will admit that a man who has been continuously successful in open competitions must be one alert to changing needs and to the best in the solutions evolved to satisfy them.

So the Inaugural Address of 1935 might have been expected to be worth a more than customary attention by the Institute's members. And in the event, this expectation was justified.

Two sentences of Mr. Thomas's address should become the basis of R.I.B.A. policy, and of its members' strenuous exertions, during the next few years. He said : " It has seemed to me that the R.I.B.A. has reached a turning-point in its history, or, shall I say, a point of new departure." And again : " What is wanted is a national campaign on the necessity of having a properly qualified architect employed on every building operation."

Architects, who are apt to be busy men, have a way of not looking very far ahead, and they may have felt, on reading these sentences that they have heard something very like them before.

That impression is correct, but it does not make them less true. This JOURNAL alone has more than fringed the edge of boredom in its repetition that there is nothing easier than for a professional body to shrug away its status ; no one misses status very much until livelihood begins to go with it. That is the danger that architects are facing now.

In the past five years the R.I.B.A. has reorganized itself for action by the very hard work of far too few. It has built new headquarters and increased its prestige until—there could be few better examples—hardly a newspaper in the land bothers to extend the initials R.I.B.A.

The machine is ready for action—*what* action depends upon the members of the Institute. The best possible action is the self-preparation of those members for the changing scope of architectural practice.

Education of the public—by lectures, meetings, publicity or what not—is important ; self-education of the profession is vital. It will take a long, long time before the education of the public results in a qualified architect being employed, as a matter of course, on every building operation. It would take a very short time if architects resolutely stepped into the position of leadership in planning for which their training has especially equipped them.

Contemporary transport and economics, the problems of new industrial areas and past industrial—called " special "—areas, has enlarged the scope of the architect stupendously. Architects today cannot be, and the profession must suffer irremediably if they remain, wholly " one-building " men.

Part of their minds and their energies must for the future be devoted to problems of a hundred, and of a thousand, buildings. Only by their guidance, their use of their training, in such larger problems can architects gain the confidence of the public upon a scale that will guarantee, permanently, the full employment of their abilities.

There is no easier path. To the thinking members of the public the problems of land utilization, regional planning, industry and housing reduce to trifles, by contrast, badly designed small houses and street buildings. It is regrettable but true. The country is taking the largest things first.

In these largest things there is a clamant need for the architect, who better than most can appreciate the results of an unplanned nineteenth century. The Land Utilization Survey, now being undertaken by the London School of Economics, is only one great work in which the members of the R.I.B.A. not only can, but ought, to be taking a very responsible part.

And next, and very pertinently at the architects' own door, there is the question of industry—today almost entirely carried out by methods of mass-production. It is now realized that the minute planning of such factories, the securing of the best conditions for workers, is essential to their efficient operation. Architects at present are responsible for deplorably few factories. It would, therefore, seem wise for them, acting through the Institute, to make studies of each industry in turn ; even preparing sketch schemes and filing all data, in the knowledge that when rebuilding is necessary the Institute will then almost certainly be consulted.

These are only two suggestions. By acting on them and others like them, and only by such action, can architects hope to have their abilities so generally known to the public that, as a matter of course, they will be employed on every building operation.

The Architects' Journal
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NOTES & TOPICS

INFORMAL MEETING

THE excellent series of Informal General Meetings at the R.I.B.A. continues on Wednesday next, December 11, with an informal discussion on "Architectural Education—its Present and Future."

*

The first speaker will be Professor Walter Gropius, whose work at the Bauhaus makes him particularly qualified to speak to the younger generation of architects.

*

The chairman will be Mr. L. H. Bucknell and I see that Professor H. S. Goodhart-Rendel, Mr. Howard Robertson, and several junior members have promised to take part in what should be a most illuminating discussion.

BOLTON

Hats off to the old firm—Lanchester and Lodge—in once again showing its mettle and winning the Bolton competition.

*

And good luck to the president of the R.I.B.A. for his sporting shot for a competition during his term of office, and especially for pulling off the second place.

*

Has a P.R.I.B.A. ever had the courage to do this before?

TIMBER

As I write, the results of the Timber Development Houses competition have been announced, and I am delighted to find that five out of the six prize-winners are ex-students of the A.A. School.

*

More remarkable still, I learn that all five spent some considerable time in the school studying design in reinforced concrete. It says much for the soundness of teaching of the principles behind design in any materials that these students should now win prizes for timber houses—a material quite new to them.

LE SPORT

Feeling cross and despondent the other day I expended the sum of half a crown in trying my luck (or is it skill, this year?) with the Stock Exchange "Help Yourself" Society's Xmas Draw (or is it Competition?).

*

Among the 3,400 prizes offered, who would not display excusable—or deplorable—greed, especially when confronted by No. 659, presented by a builder, who writes: "If you must do your own decorating I will supply six pieces of wallpaper, 7 lb. of paint, distemper and brushes; also 7s. 6d. for doctor's fee and 5s. for a charwoman to clean up the mess; value £1 15s."

*

Or would you rather win No. 1,408, presented by Councillor T. Scott Sutherland, of Aberdeen, who offers—"A box of chocolates, value £1, or, alternatively, should the recipient be able to avail himself thereof, the following: Free Architectural Services if building a house in or near Aberdeen during 1936, in which case the value would be anything between £100 and £200."

*

This on the face of it is disproportionate—or is it in reality a good sporting offer on a two hundred to one chance?

NATIONAL PARKS

I am in complete sympathy with the meeting held on Saturday at the Central Hall, Westminster, to press the urgency of national parks, and it is to be hoped that something will come of it.

*

The idea of an area greater than that of the City of Liverpool being covered by building each year is almost too awful to contemplate.

*

The first areas which should be preserved are obviously those of especial natural beauty most likely to be despoiled; but any scheme of the magnitude suggested should be so planned as to ensure that at least a considerable portion of the national parks would be within a reasonable distance of the great centres of population.

"YOU ENGLISH"

Hope Bagenal's play produced on Friday and Saturday of last week was, I thought, sound meat. True, it requires a little cutting here and a little sharpening there, but on the whole is a most creditable effort.

*

Neither the production nor the acting were up to the same quality as the authorship. Flamino, Nanina, and Giorio were acted well, but Frank, the Englishman, forgot too many lines. The laddie committed the unforgivable offence of forgetting his endearing lines whilst embracing passionately the yielding Teresa.

*

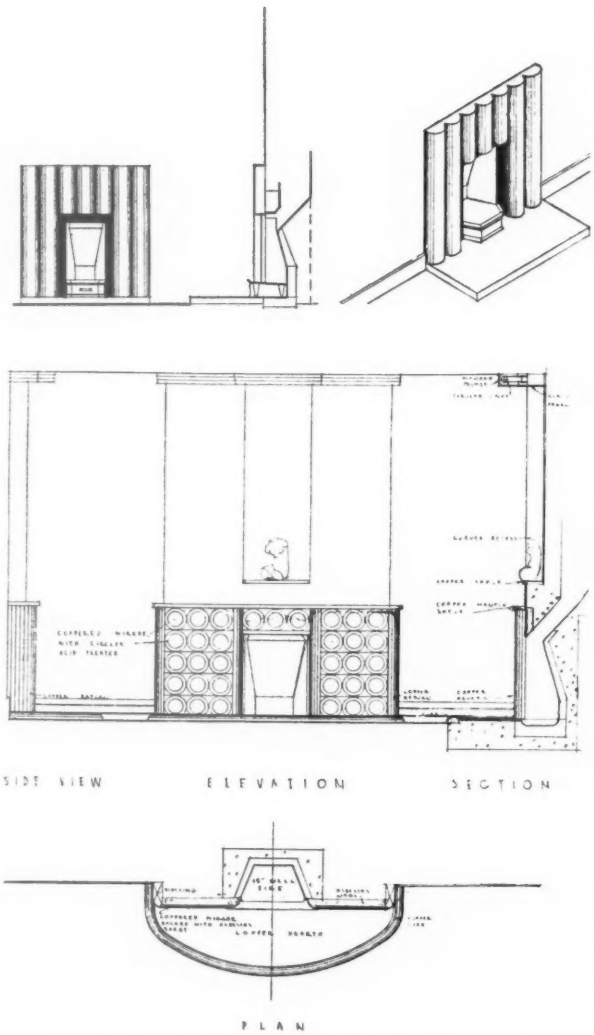
But the Society has revealed to us sufficient talent to overcome quickly these immaturities.

FAST BLUE PIGMENTS

Last week saw the official release of a new blue pigment by I.C.I.s for which many virtues are claimed. And rightly claimed, if I am to judge by the samples I saw, for it really does seem as though here at last is a blue pigment that won't fade.

*

And I should think that the best piece of publicity I.C.I.s could get would be to paint the A.A.'s front door,



The designs bracketed first in the competition, promoted by the Coal Utilization Council, for designs for open fireplaces. Top, by A. L. and A. M. Osborne; bottom, by H. E. Burton.

for at the moment it has to be done about every six months, and is looking pretty tired even by the end of that time.

WEATHERING

Talking of a pigment which is unaffected by the weather reminds me of the broader question of the weathering of our buildings.

*

We are losing the art of designing buildings which weather gracefully, and I can see no reason why a building designed for a limited number of years should not look mellower after one year of existence and look mellower still after ten years.

*

Some of our modern buildings lose all their good qualities of appearance in so incredibly short a time that I am convinced that more attention must be paid to the weathering, not merely of individual materials, but of the combinations of materials now usual on our elevations.

*

That our ancestors spent much time in studying how to control weathering on their stones is I believe generally acknowledged, and the result of their studies today generally admired. But even excessive weathering can be overdone, and we then come to the point of having to sacrifice the mellowness of years to the preservation of the structure.

*

A study of Westminster Abbey today, and of St. Martin's Church in Trafalgar Square, will show how much this sacrifice is. But both examples will give us an opportunity of studying the beginnings of a new period of weathering—and in comparison with what we know has happened in the last few hundred years there should be some useful observations to be made.

WOLF IN SHEEP'S CLOTHING

Passing down Great College Street to Dean's Yard, I was surprised, on looking through a gap in the hoarding, to see large steel stanchions and girders being clothed in knapped flints.

*

It seemed so unusual a material for this purpose that I looked round to see if it was used elsewhere, but though I looked at the Abbey and Dean's Yard and along College Street I could find no trace of it; and so I proceeded on my way, feeling that yet another contribution had been made to the great science of building.

DOCUMENTARIES

At the D.I.A. meeting recently I was greatly impressed by the four "documentary" films shown. I have seen special films dealing with trades before, but now that sound is available the dramatic value of these documentaries is as great as, if not greater than, that of the full length star programme film.

*

"Coal Face" and "The Face of Britain" I thought particularly good. Speaking to Mr. Paul Rotha after the shows (he produced the latter film) I was surprised to learn of the small cost of these documentaries. They cost from 12s. 6d. to £1 a foot, including the sound recording, so that a 1,000 ft. reel, a usual size, can be had for considerably less than £1,000. Without the sound the cost is about half this.

*

I have not yet seen a sound film documentary of the building industry and trust that if one is not already made the deficiency will soon be remedied. I can think of no more dramatic a subject than the activities which go to the making of a large building—or of a small house for that matter.

ALARM BEFORE FIRE

I am glad that I do not live in Tottenham. I should never feel that a green fire-engine could be the slightest use at a fire, despite the fact that the colour harmonized with the chromium fittings. The thing is absurd.

*

But that apart, I think it is a pity. There is a sort of importance and urgency about red which makes it a particularly appropriate colour for a fire-engine.

ASTRAGAL

TECHNICAL SECTION

With the current instalment, the articles on Heating, Air-Conditioning and Mechanical Equipment, by Dr. Oscar Faber and Mr. J. R. Kell, come to an end. Owing to the interest which has been aroused by these articles, it has been decided that they will be published in book form during the Spring of 1936.

NEWS

POINTS FROM THIS ISSUE

WANDSWORTH BRIDGE

The Royal Fine Arts Commission has endorsed the design for the new Wandsworth Bridge, and recommended the Minister of Transport to give approval. The bridge will be of the three-arch cantilever type, with a width of 60 feet.

QUARRY HILL SITE, LEEDS

The City of Leeds Housing Committee has approved a scheme whereby students of the Leeds School of Architecture in the Leeds College of Art are to be invited to offer suggestions for the lay-out of a portion of the Quarry Hill site, Leeds. This is the site chosen for the erection of a large block of flats in the centre of the city. The competition will be assessed by Mr. R. A. H. Livett, the Director of Housing, in conjunction with the Principal and staff of the School.

NATIONAL HOUSING AND TOWN PLANNING CONFERENCE

Sir Kingsley Wood, Minister of Health, discussed the slum clearance at the conference of the National Housing and Town Planning Council at Scarborough last week. So far as the clearance of the slums was concerned, he said, a successful attack was now being made, and already 280,000 slum dwellers had been given new and healthy homes. The middle of the period set out for the completion of this task had now been reached, and the facts certainly justified the hope that if during the second half of the allotted period local authorities continued with the same zeal and energy, the task would be successfully accomplished, in all but a few towns, by 1938.

ARCHITECTURAL ASSOCIATION

The following notice has been issued by the Architectural Association, London: "Professor H. S. Goodhart-Rendel, F.R.I.B.A., has, at the invitation of the Council, accepted the position of Director of the School of Architecture. Mr. E. A. A. Rowse, A.R.I.B.A., A.M.T.P.I., has accepted the post of Principal of the School and will also retain his position as Principal of the School of Planning. These appointments will date as from January 1, 1936."

THE ARCHITECTS' DIARY

Thursday, December 5

INSTITUTION OF STRUCTURAL ENGINEERS. *South-Western Counties Branch. At Plymouth. "Aspects of Standardization." By H. J. Scoles. Yorkshire Branch. At the Hotel Metropole, Leeds. Film record of welded buildings in Birmingham, and running commentary by P. L. Roberts.* 7 p.m.

GEFFRYE MUSEUM. *Kingsland Road, Shoreditch, E.2. "English Furniture of the Satinwood Period." By Hesketh Hubbard.* 7.30 p.m.

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

INTERNATIONAL EXHIBITION OF CHINESE ART. *At the Royal Academy, Burlington House, Piccadilly, W.1.*

Friday, December 6.

INSTITUTION OF STRUCTURAL ENGINEERS. *Western Counties Branch. At the Merchant Venturers' Technical College, Bristol. "Some Aspects of the Theory of Corrosion." By W. H. Dearden.* 7.15 p.m. *Midland Counties Branch. At Leicester. "Rigid Frame Bridges in Reinforced Concrete." By A. P. Mason.* 7 p.m.

Monday, December 9

CHARTERED SURVEYORS' INSTITUTION, 12 *Great George Street, Westminster, S.W.1. "The Restriction of Ribbon Development Act, 1935." By A. T. V. Robinson.* 6.30 p.m.

Tuesday, December 10

CENTRAL HALL, *Westminster, S.W.1. "The functions of voluntary housing societies to-day." By Sir Kingsley Wood, M.P.* 8.30 p.m.

ILLUMINATING ENGINEERING SOCIETY. *At the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1. "Practical Electric Discharge Lamps: Their general applications and recent advances." By L. J. Davies.* 7 p.m.

SOUTH-EASTERN SOCIETY OF ARCHITECTS. *At 1 Edridge Road, Croydon. "The Future of English Domestic Architecture." By Darcy Braddell.* 8 p.m.

ARCHITECTS' AND TECHNICIANS' ORGANIZATION. *At the Friends Meeting House, Euston Road, N.W. "Technicians and Socialism." By Prof. Harold Laski* 8 p.m.

Wednesday, December 11

R.I.B.A. *Informal General Meeting. Discussion on "Architectural Education: Its Present and Future."* 6.15 p.m.

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. "The Organisation of Transport, with special reference to the L.P.T.B." By Frank Pick.* 8 p.m.

INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS, 43 *Grosvenor Place, S.W.1. "Vanished City Churches." By Percy Lovell.* 7 p.m.

INSTITUTE OF WELDING. *At the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1. "Bridge and Structural Welding." By G. Roberts.* 6.30 p.m.

HACKNEY MARSHES DISPUTE

Application was made in the High Court yesterday (Wednesday) for a rule nisi directed against the Minister of Health to prohibit the appropriation of 30 acres of Hackney Marshes for housing.

Mr. L. Silkin, chairman of the L.C.C. Housing Committee, stated last week that this acquisition was the first step in a vast scheme of rehousing in Bethnal Green, Stepney and adjoining boroughs. The cost has been tentatively stated as £50,000,000.

NEW MATERIALS GALLERY AT THE LIVERPOOL SCHOOL

Dr. R. E. Stradling, Director of the Building Research, opened a new materials gallery of the Liverpool School of Architecture in the Leverhulme Building of the University of Liverpool last week. Discussing "Science and the Architect," Dr. Stradling said:

"I have every sympathy with the pioneer—no advances can come without him—but in architecture particularly his failures bring troubles not only to himself (and recent legal decisions show this to be serious enough), but also to those who place their trust in him as a professional adviser.

"An example may make this point of view rather clearer. In traditional English house design one usually finds a pitched roof with appreciable eaves, reasonable projections at the top and bottom of windows and doors; walls constructed of brick or stone, or may be roughcast. Whether this type of design is artistically good or bad I do not offer an opinion, for I am not an architect and certainly not an artist, but such construction is usually thoroughly weatherproof if reasonably carried out in traditional materials. It probably developed, of course, for this reason, and not because of any deliberate striving after an artistic effect.

"Compare now a typically modernist design of a box-like structure with flat roof, no weather projection over parapets, windows or doors; walls rendered in smooth Portland cement rendering. From enquiries received at the Building Research Station it seems such structures are often anything but weatherproof. I have no desire whatever to discourage departure from traditional forms, but it must be realised that the real old forms were not artistic freaks, but answers 'hammered out' over years of striving to develop weather protection from our variable climate. Before discarding old forms it is essential to make sure that those it is proposed to use instead meet the essential protection requirements for which the building industry really stands. Even when this is done and new materials or rearrangements of old ones are contemplated, an intimate knowledge is necessary of their properties not only alone, but also in juxtaposition, if a sound structure is to result.

"The modern demands in the building industry are very different from those under which the traditional forms developed. The higher standard of living for our people generally as evidenced by our slum clearance plans bring quite new problems. How are we to deal with the noise nuisance or the bed bug scourge, to mention but two?

"The real architect-artist is urgently required with all the pioneering fire of which man is capable, but he must be properly trained to meet modern conditions. In my opinion this can only be done by very much more intensive science work than is usual at present, for he must have a very real knowledge of the media in which he is to design."

OPENING OF PARLIAMENT: THE KING'S SPEECH

Reference to slum clearance was made in the King's speech (read by Viscount Hailsham) at the opening of Parliament on Tuesday last: "My Ministers will continue to promote actively the development of the social services, and to take vigorous measures to improve the health and physique of the nation. They will press forward the work of slum clearance in order to ensure that the programmes submitted by local authorities are carried out within the period contemplated, and they will encourage the active administration of the Housing Acts of 1935 which enable local authorities to make a direct attack upon the evils of overcrowding."

ANNOUNCEMENTS

The Dean and Chapter of Hereford Cathedral have appointed Mr. W. E.

Ellery Anderson, L.R.I.B.A., as consulting architect, to the Cathedral.

Mr. J. Douglas Miller, F.I.A.A., has removed his offices to 30 Walker Street, Edinburgh.

COMPETITION NEWS

MUNICIPAL OFFICES, YORK

Mr. Henry V. Ashley, F.R.I.B.A., the assessor of the competition for proposed municipal offices, clinics, etc., York, has made his award as follows :—

Design placed first (£250) : Mr. Donald H. McMorran, A.R.I.B.A., of 34 Butler Avenue, Harrow-on-the-Hill, Middlesex.

Design placed second (£150) : Messrs. Elcock and Sutcliffe, FF.R.I.B.A., of Adam House, 60 Strand, London, W.C.2

Design placed third (£100) : Mr. Frank Lishman, of 9 King's Bench Walk, Temple, E.C.4.

Design placed fourth (£50) : Messrs. Bradshaw Gass and Hope, FF.R.I.B.A., of 19 Silverwell Street, Bolton.

The premiated designs will be published in our next issue.

TIMBER HOUSES

The result of the competition for timber houses was announced on Monday last as follows :—

SECTION 1 : Designs for a timber house suitable for a small family, the total cost to be £800. Design placed first (£100) : Mr. Reginald A. Kirby, Student, R.I.B.A., of 1 Fraser House, Larkhall, S.W.8. Design placed second (£30) : Mr. E. H. Lockton, Student, R.I.B.A., of 4 Rose Hill Road, Wandsworth, S.W.18. Design placed third (£25) : Mr. B. A. Le Mare, A.R.I.B.A. of 29 The Drive, Walthamstow, E.17.

SECTION 2 : Designs for a week-end timber cottage, the total cost to be £350. Design placed first (£100) : Mr. William Tatton Brown, B.A., of 6 Bedford Square, London, W.C.1. Design placed second (£30) : Mr. Harry Moncrieff, A.R.I.B.A., of 9 Victoria Square, Newcastle-upon-Tyne. Design placed third (£25) : Mr. Cameron Kirby, F.R.I.B.A., of 1A Duke Street, Manchester Square, London, W.1.

The competition was promoted by the Timber Development Association and the assessors were : Messrs. Robert Atkinson, F.R.I.B.A., Maxwell Fry, B.ARCH., A.R.I.B.A., and G. Grey Wornum, F.R.I.B.A. The premiated designs are illustrated on pages 836-840.

TECHNICAL COLLEGE, BOLTON

The result of this competition is given on page 854 of this issue.

CIVIC BUILDINGS, SOUTHPORT

Conditions of the competition for proposed civic buildings to be erected on the Woodlands site at Southport are now obtainable from Mr. R. Edgar Perrins, Town Clerk, Southport (deposit £1 1s.). The competition is open to architects of British nationality and the assessor is Mr. E Vincent Harris, F.R.I.B.A.

LUMPS FORT SITE, PORTSMOUTH

Thirty-three designs have been received by the Portsmouth Town Council in connection with the competition for the lay-out of the Lumps Fort site, Portsmouth.

R. I. B. A.

GENERAL MEETING

At the general meeting of the R.I.B.A., held on Monday night, Mr. Percy Thomas presented the R.I.B.A. Medal and Diploma for a London building built between 1932 and 1934 to Sir John Burnet, Tait and Lorne, FF.R.I.B.A., the architects for the Royal Masonic Hospital, Ravenscourt Park, W. The presentation was preceded by a paper on "The Work of Beresford Pite and Halsey Ricardo," by Professor H. S. Goodhart-Rendel, F.R.I.B.A., extracts from which are given below :

Whatever our faults today, we can claim a greater amount of organizing foresight in attacking large problems than was shown by British architects of the last generation. We plan more systematically, we design elevations less capriciously, we take more pains in subordinating detail to mass than did the band that fought beneath the banners of Street and of Morris. We also have largely outgrown the fear of modern conditions that drove weaklings from that army into the haven of make-believe (although I fancy that the feverish exaltation of some of our "progressives" would be attributed by a psycho-analyst to a defiant fear of that which they pursue). On the other hand, we have lost much that the older men had, and that we should be the better for having also. We are much less alert than they were to recognize and respond to the emotional significance of shape. We may be better all-round architects, but in so becoming we have lowered our sensitiveness—only temporarily, I hope—to those formal values in architecture that entitle it to be considered as a Fine Art.

In the nineteenth century the Fine Arts were peculiarly hampered by a constant opposition between what were then called art-lovers and Philistines, and now, I suppose, would be called highbrows and lowbrows. There was, as too often there still is now, an art for the million and an art for the few, and the art that the million wanted and got was not usually of a character that a sensitive man could conscientiously provide. The art for the few, on the other hand, was produced earnestly and liberally, but in an atmosphere that inevitably was slightly stuffy. No winds of popular approval or disapproval came to fan its sparks or to blow away its cobwebs. In Victorian England nearly all of the new architecture that came into the life of the general public was commercially produced and of no great æsthetic value. The good work of the time was done either for a small body of discriminating patrons, or for people that did not value it at all. Halsey Ricardo seems generally to have worked for those who knew him as the true artist that he was. He may not always have got his own way with them, but what he did was appreciated when done. Many of Beresford Pite's buildings were beautiful only because he wished to make them so, they came into being to answer demands that were almost purely utilitarian (and have often been badly treated by those who did not realize what they had been given).

The output of neither of these artists was large ; that of Beresford Pite was the larger of the two. I should think that the list of Halsey Ricardo's executed designs was shorter even than that of Philip Webb, whose great reputation is built upon foundations so few, but so firm. The conduct of his practice was remarkably unlike what is usual today. His office was in his house, nearly every drawing that came from it was made by him himself, and his correspondence was all in his own beautiful handwriting. His working drawings usually contain an extraordinary amount of relevant detail clearly and conveniently packed on to each sheet, his letters are illustrated by sketch designs drawn in the midst of the writing. Anyone employing him to build a house must have felt that he was sharing in a delightful adventure with a delightful correspondent.

If we wished now to build in this informal and unhurried manner, we should find its cost prohibitive, not to the employer, but to the architect.

If there were anything in the theory that by his work you could know the artist, you would now not need any telling that Halsey Ricardo was, as many of us admiringly remember, a good, charming, handsome man, of remarkable innate distinction, and with an enthusiastic love of beauty in art and in nature. Next to Architecture among the arts he loved music, in which he had skill and taste. Like most architects of his generation and many of ours, he was somewhat arbitrary in his preconceptions of design, and in his method of planning was opportunist rather than systematic. On nothing he did, however, did he fail to impress his endearing personality—his works unfailingly engage our affection even when they may not completely satisfy our judgment.

That his name should be coupled in this lecture with that of Beresford Pite arises only from the accident that your lecturer has some small but special competence to speak of both men. No comparison is intended between them, indeed in one aspect there is an antithesis. For all his admiration of Butterfield, Halsey Ricardo never in his architecture used shock tactics to further his cause. Beresford Pite, on the other hand, probably assailed the architectural world with a more continuous cannonade of surprises than had any architect before his time, or will any that is likely to come after it.

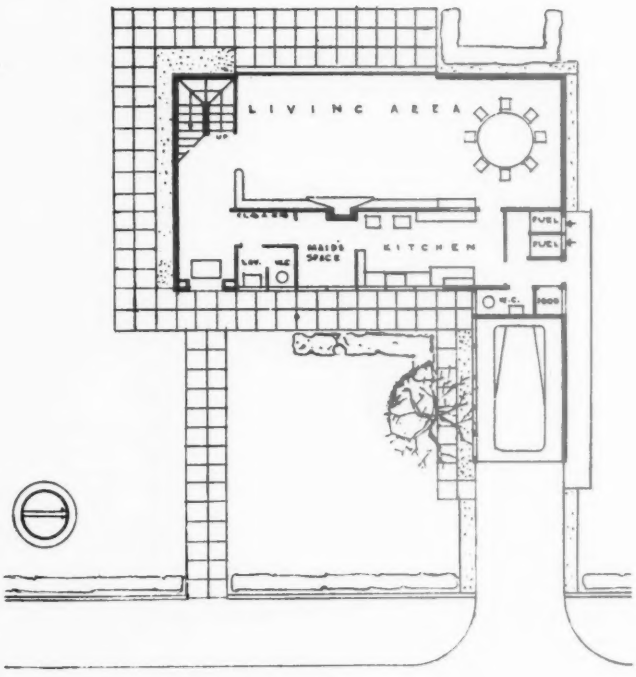
None of us who loved him have even yet had time to realize that he is gone from among us ; his interest in architecture was so universal, his vitality so unfailing, that it is difficult to remember when things in this room get really interesting that his voice will not again suddenly ring out as it used to in Conduit Street to invigorate our debate and illuminate our thoughts. With some of what he built we may find fault. With all of it we may—we must—feel that his opportunities were inadequate. He was an architect of extraordinary capacities, fated to spend much of his energy in work too ordinary to employ them, and in consequence he perhaps was occasionally something of a bull in a china shop. There was nothing in our art that he could not do extremely well if he tried, but he generally preferred not to try what was in vogue with the yesmen of the moment.

In the work of Beresford Pite, seen as a whole, three influences can be traced without any difficulty, although in many particular designs their fusion may defy analysis. The first was that of Albrecht Durer, whose draughtsmanship, conspicuously imitated at the outset, was later to become only the foundation of a technique absolutely peculiar to Beresford Pite himself. The famous design for a club house that won the Soane Medallion in 1882 was the climax of his Durer influence ; I have only not shown it to you because it has been republished so recently that it probably is familiar to everybody here.

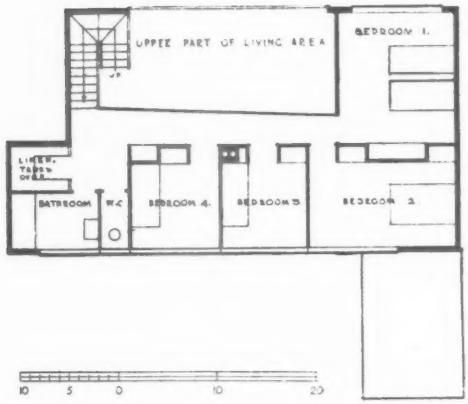
The second influence was that of Hellenistic forms such as those that can be found in Syria, in the late days of Rome, and to some degree in Byzantium. The Euston Square building, the Islington Library, and the schools in Foley Street all have this flavour in varying degrees.

The third influence was that of Michelangelo, and I am not sure that that was not the strongest of all. I feel positive that Michelangelo would not have been nearly as rude about the new entrance to the Burlington Arcade as have the more genteel persons who do most of our art criticism today, and he could not have seen many of Beresford Pite's buildings without noticing several doorways and windows completely after his own heart.

COMPETITION FOR TIMBER HOUSES:



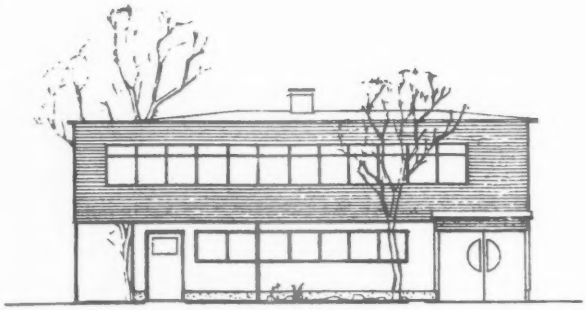
Ground Floor Plan



First Floor Plan

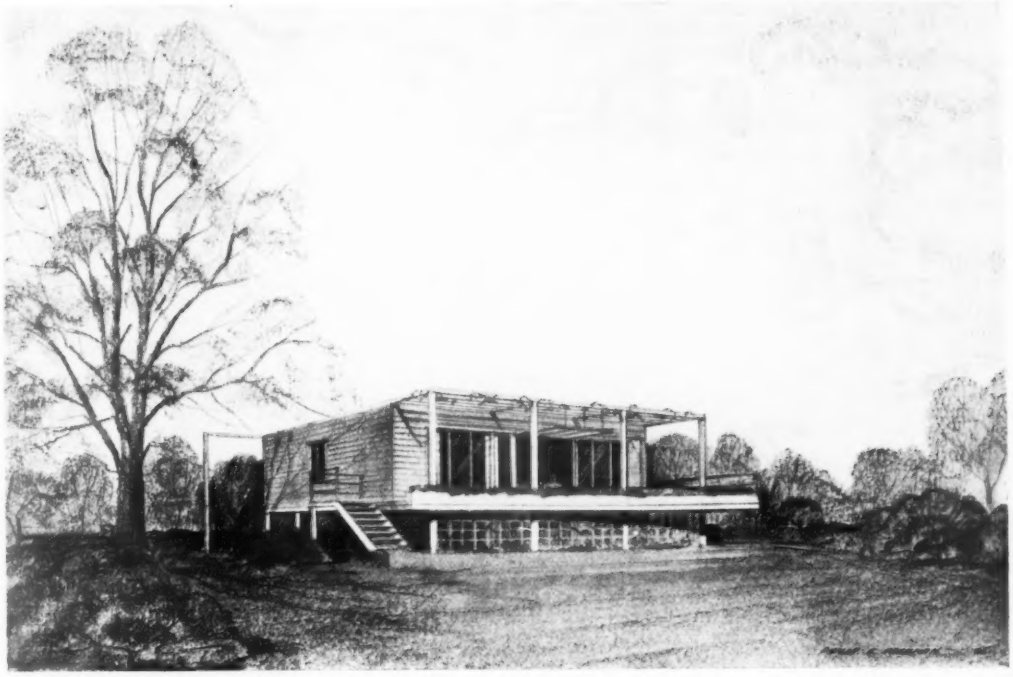
SECTION 1: TIMBER HOUSE SUITABLE FOR A SMALL FAMILY: COST £800

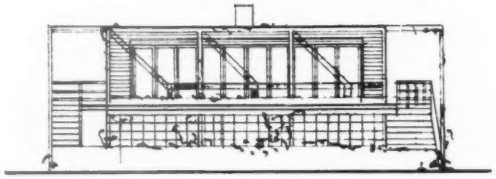
DESIGN PLACED FIRST: BY R. A. KIRBY



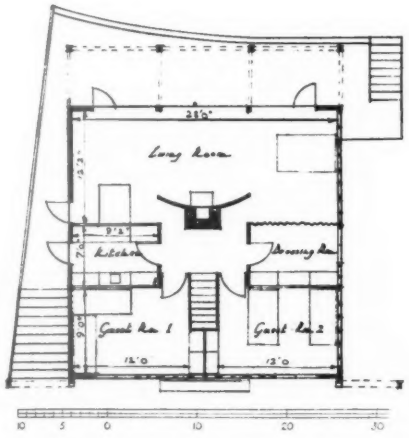
East Elevation

THE PREMIATED DESIGNS

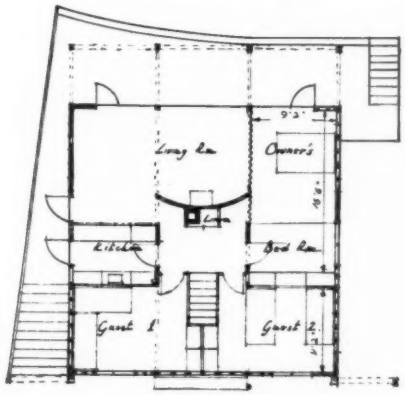




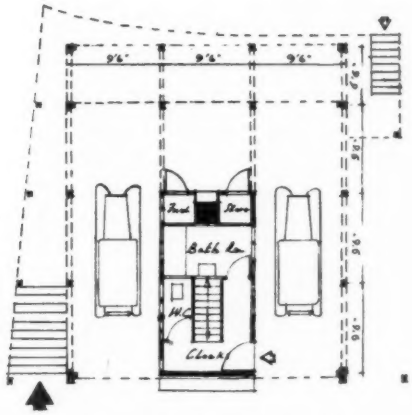
South West Elevation



First Floor Plan: Day Time



First Floor Plan: Night Time

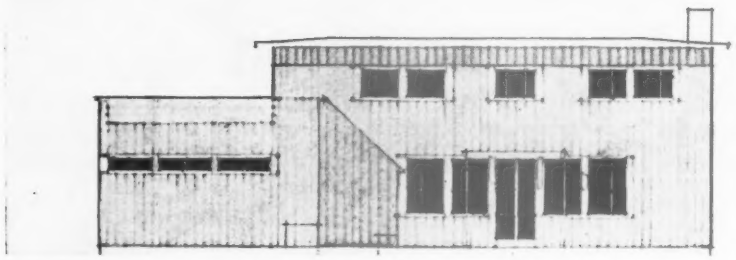


Ground Floor Plan

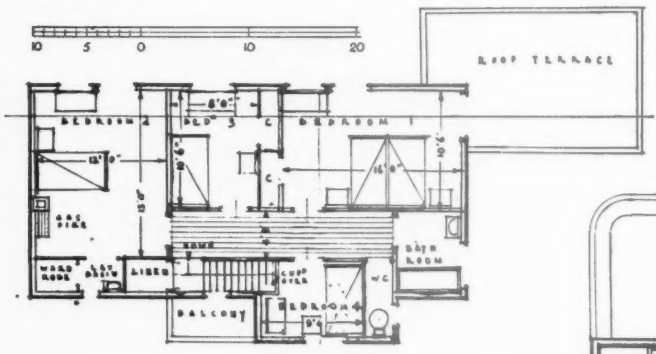
SECTION 2: WEEK-END TIMBER COTTAGE: COST £350

DESIGN PLACED FIRST: BY WILLIAM TATTON BROWN

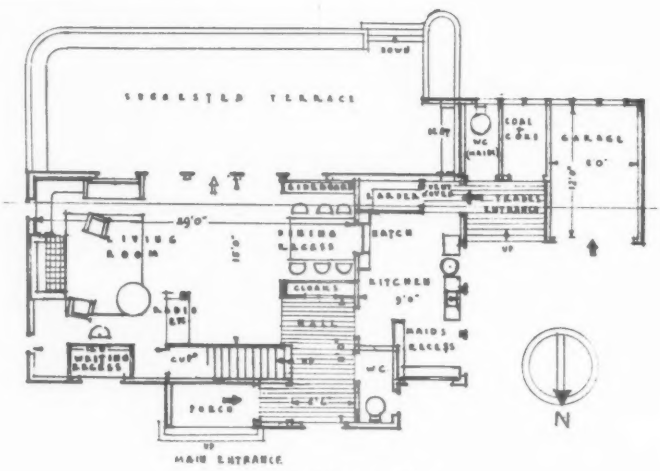
COMPETITION FOR TIMBER HOUSES:



South Elevation



First Floor Plan



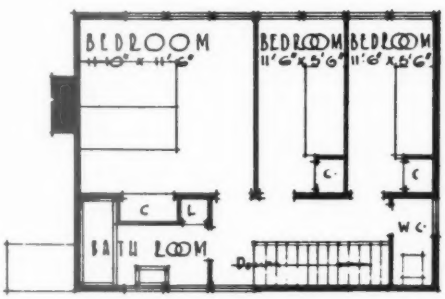
Ground Floor Plan

SECTION I: TIMBER HOUSE SUITABLE FOR A SMALL FAMILY: TOTAL COST £800

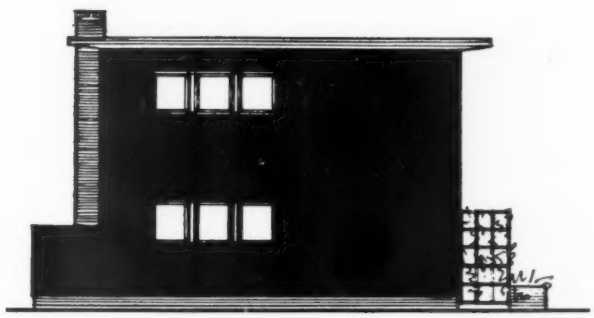
DESIGN PLACED SECOND:

BY E. H. LOCKTON

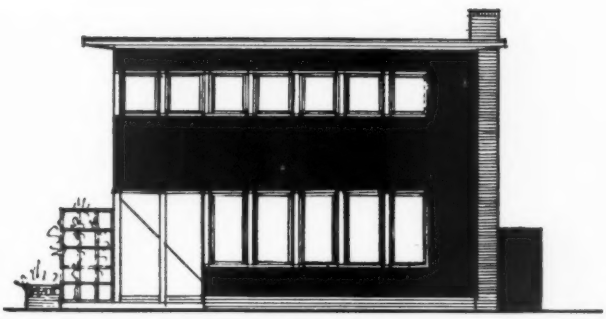
THE PREMIATED DESIGNS



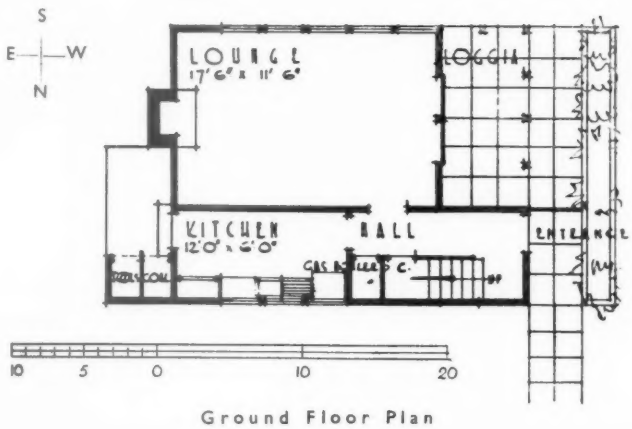
First Floor Plan



North Elevation



South Elevation



Ground Floor Plan

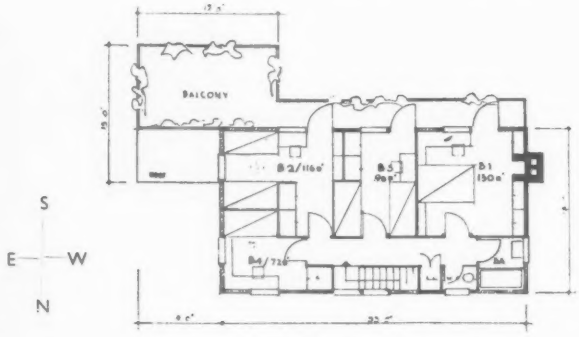
SECTION 2: WEEK-END TIMBER COTTAGE: TOTAL COST £350

DESIGN PLACED SECOND: BY HARRY MONCRIEFF

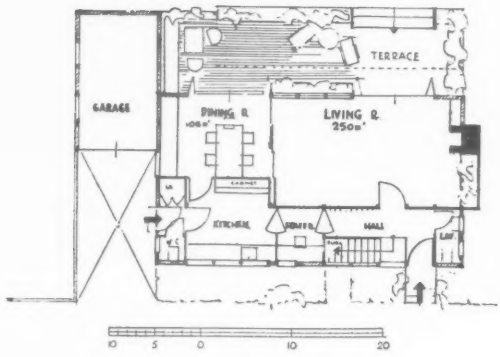
COMPETITION FOR TIMBER HOUSES

SECTION 1: TIMBER HOUSE SUITABLE FOR A SMALL FAMILY: TOTAL COST £800

DESIGN PLACED THIRD: BY B. A. LE MARE



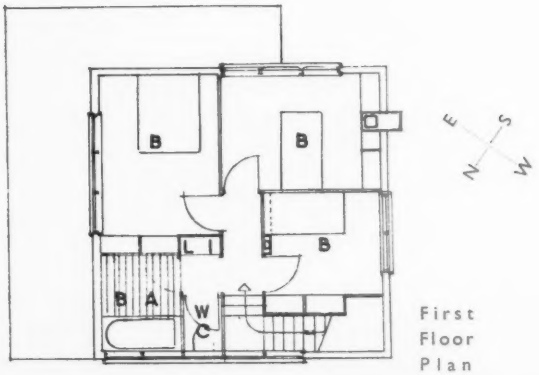
First Floor Plan



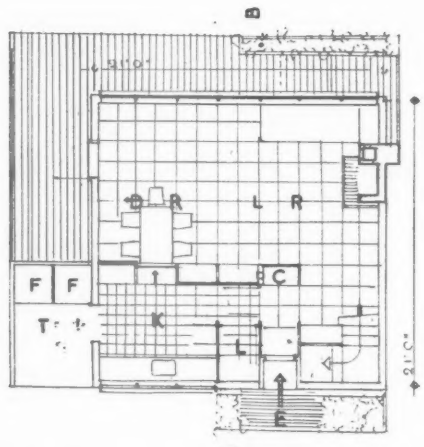
Ground Floor Plan

SECTION 2: WEEK-END TIMBER COTTAGE: TOTAL COST £350

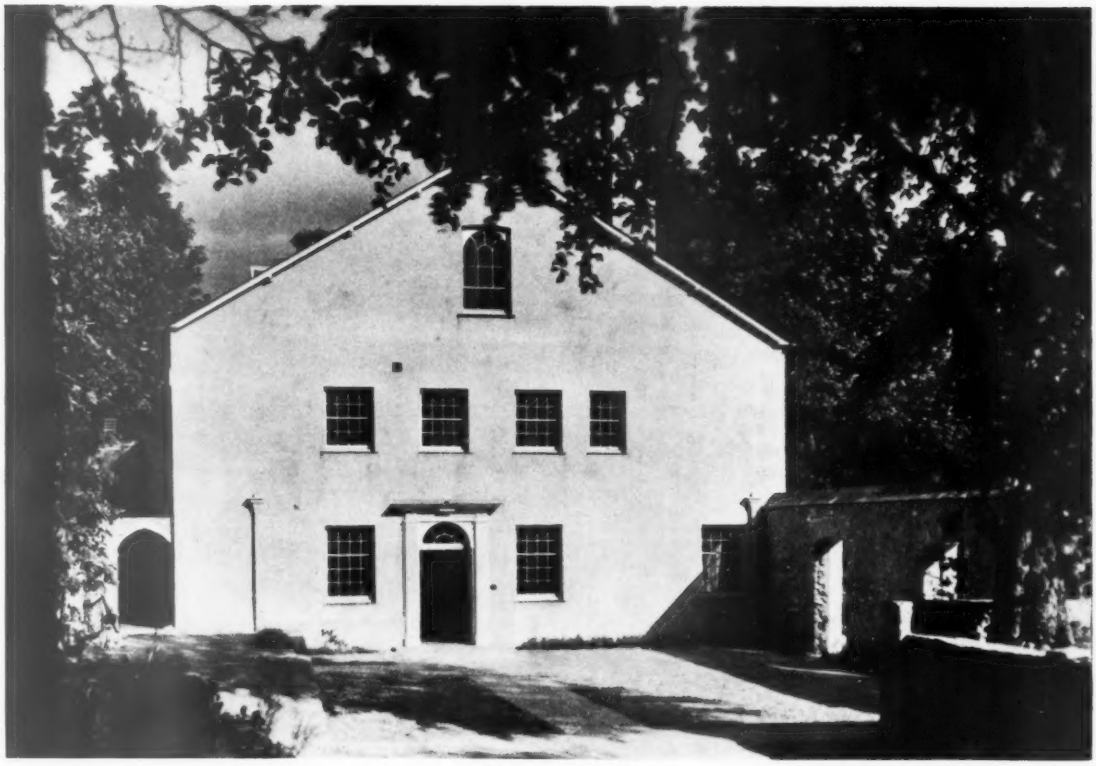
DESIGN PLACED THIRD: BY CAMERON KIRBY



First Floor Plan



Ground Floor Plan



The new entrance.

1825—1935: THE HISTORY OF A HOUSE

BARNELLS, BRANSCOMBE, SOUTH DEVON

DESIGNED BY MARGARET TOMLINSON

1825

THE house of Barnells originated in about the year 1825 in Trafalgar Cottage (see plans overleaf) built by a Captain Yule on his retirement from the Navy, the captain having served as a lieutenant on Nelson's *Victory* during the battle.

The cottage, facing south on a steep hillside, had the usual genteel plan of the period; a central hall flanked by living-rooms, offices at the back, principal bedrooms on the first floor and servants' attics above. The walls were of 2 ft.-3 in. rubble, the roof probably of thatch, and the windows were pointed and diamond paned, as the result of the first mild influence of Romanticism in Devon. Towards the middle of the century the house was bought by John Tucker, who had married a young widow, originally Harriet Chick, whose family, also living in the village, had built up a successful business in the Honiton pillow lace for which south-east Devonshire is famous. The Tuckers started something of a rival business at their house, which was renamed Barnells, and, as this business and their family increased rapidly (they had twelve children), a new wing was soon added. This was in 1851, the year of the Great Exhibition, where the Tuckers had some fine exhibits of lace.

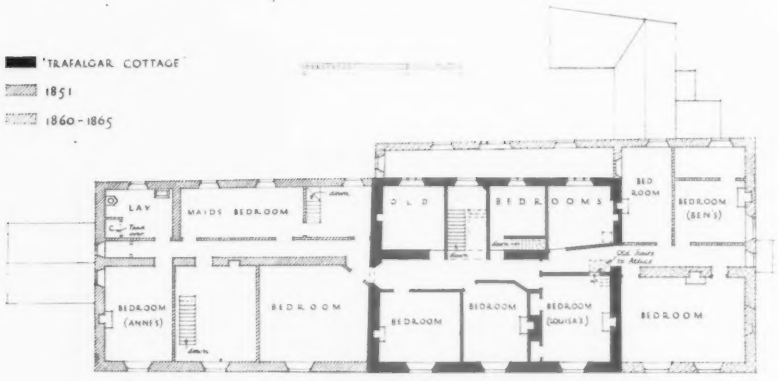
1851

The new wing, which was rapidly built, and sketchily finished, was the same width as the original cottage, and had continued the line of its frontage. It had tall, round-headed sash windows, reaching to the ground. These windows, with their panelled reveals, and the unusual pattern of their thin sash bars, echo the work of 50 years earlier, and show how slowly new influences penetrated to Devonshire. The wing, besides bedrooms for the family on the first floor, contained below storage space and rooms for the lace-workers, and as, according to the contemporary custom, the employees were compelled to take some of their wages out in kind, there was a small general shop provided at the back. It was the ground floor of this wing which afterwards became known mysteriously as "The Rooms." They were always kept locked, and nobody was allowed to penetrate into them except John Tucker's surviving daughters until the house was once more sold in 1928. By this time their mysterious contents, if any, had been destroyed.

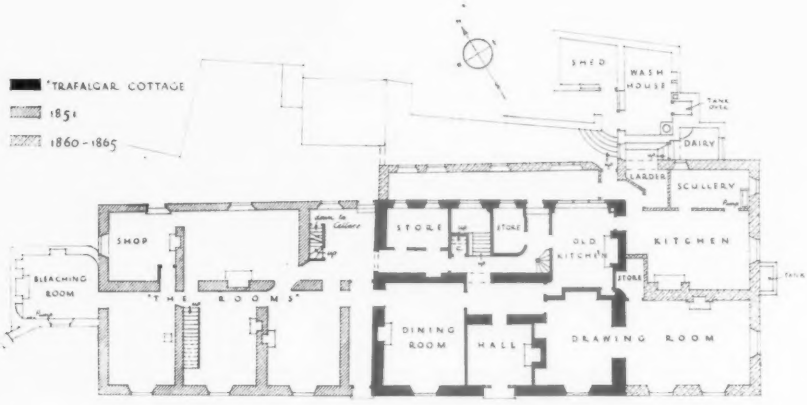
In about 1860 the house was enlarged again on the opposite side of the cottage, a new drawing-room, kitchen, and bedrooms being added. The drawing-room was completed just in time for the wedding reception of the eldest daughter. At the same time, presumably, large new sash windows were substituted for the original Gothic casements, the latter being reused in a new range of stables.

Then, in order to bring the original cottage to the same height as the flanking wings, John Tucker built over it a new main roof of slate, carried by a new outside wall at the back. Evidently he intended to clear away the remains of the cottage thus enclosed; but unfortunately he died before his scheme could be carried out, and his daughters, always overworked by their father, allowed the lace business to decline, and the alterations to the house to remain exactly as he had left them. For the 50-odd years during which the house remained in their possession they neither carried out any serious repairs, nor even, latterly, had the woodwork repainted. The 1851 wing was shut up, and the back rooms in the centre

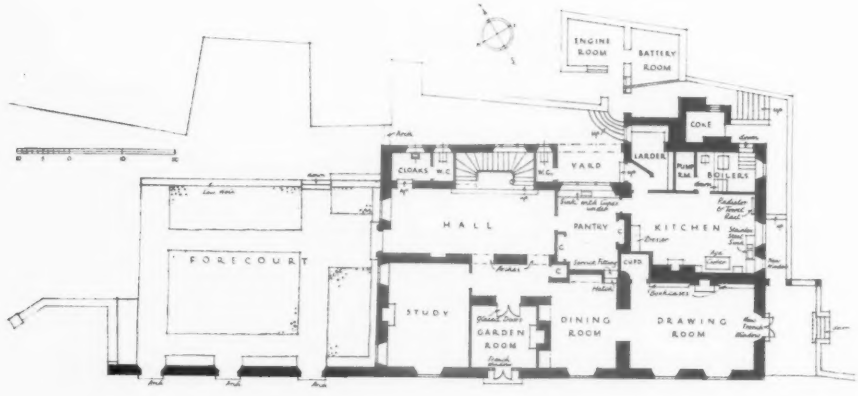
BARNELLS, BRANSCOMBE, DEVONSHIRE:



BEFORE ALTERATION:
FIRST FLOOR PLAN

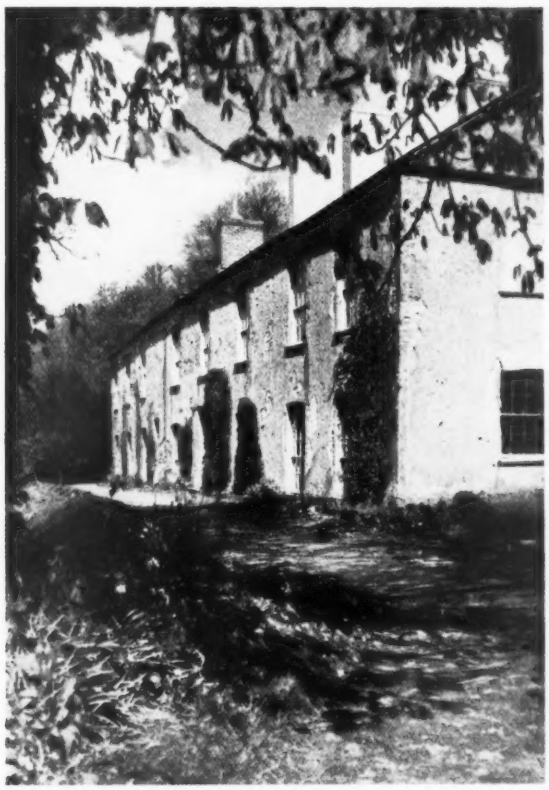


BEFORE ALTERATION:
GROUND FLOOR PLAN



GROUND
AND FIRST
FLOOR PLANS

DESIGNED BY MARGARET TOMLINSON

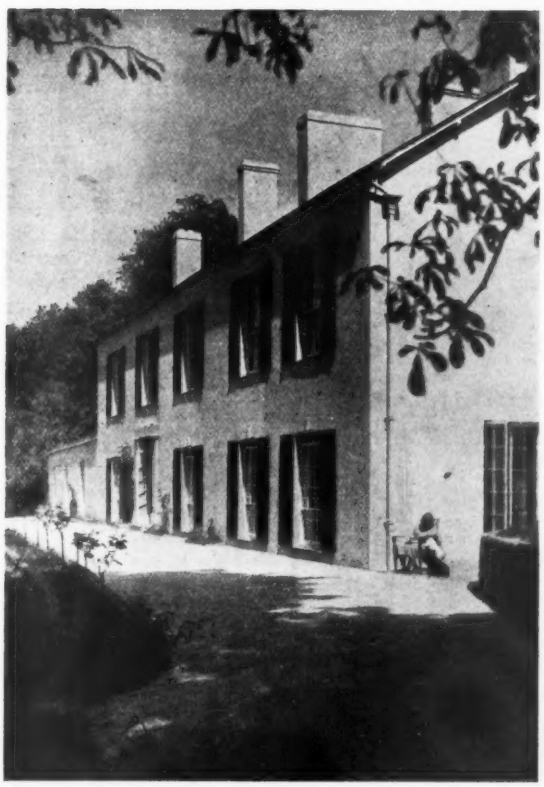


of the house were too dark to be habitable, as their only outlook was the other outside wall, 5 ft. away, pierced with doors and windows that were never used, and with holes for floor joists which were never put up.

Soon after John Tucker's death, there occurred one of the more romantic episodes connected with the house. One of his younger brothers, who had run away to sea at the age of 15, been wrecked on a cannibal island, and never heard of since, was discovered 50 years later to be alive, and living on Tahiti. He was sent for by a misguided sister, who, finding that life in London was impossible for him in his half-civilized condition, sent him to Barnells, where for the twelve years before his death he occupied an upper room, and struggled against the rigours of the English climate and the civilized life for which he was quite unfitted. There are many picturesque stories told of this pathetic old man, for he was the terror of the village, and a sore trial to the sensitive and conventional ladies with whom he lived.

1934

When the task of modernization was undertaken in 1934, the house was, in places, literally falling to pieces. The only hope seemed to be to reduce the size of the house to make it more manageable, so the 1851 wing was



The photographs show the new stairway and the south front before and after alteration. On the facing page is a view of the remodelled kitchen.

For list of general and sub-contractors see page 861.

demolished, and the debris used to fill up the old cellars beneath it. To preserve the original length of the façade, the front wall of the demolished wing was left standing to a height of 12 ft. and finished with a slate coping. The three original window openings were left to form arches, and the space between them wired for fruit trees.

Behind this screen wall, on the site of the demolished wing, is a paved and cobbled forecourt, and the gable end of the remaining part of the house forms a new entrance front. This front, with the apex of the gable in the centre, seemed to call for a symmetrical arrangement of openings, but, owing to the presence of flues and thick stone cross walls, this was impossible, and a kind of replaced symmetry has been attempted, the whole being resolved by one of the old round-headed windows inserted under the apex of the gable.

The rest of the exterior has been left for the most part unaltered, although at the back the window positions have been moved to light the new bathrooms. Green shutters have been added to the front windows, which keep the rooms cool in summer and break the severity of the front, now that the old crumbling stucco has been replaced by a uniform cement rendering.

Within, the main alteration consisted in taking down the old cottage roof, and part of its back wall, so that the house now extends to the outer wall, as was originally intended. John Tucker's main roof had a clear span of 40 ft., but, as ceilings were now to be hung to the trusses for the first time, one of the inside walls, carried on R.S.J.s over the wide openings on the landing, was taken up to support the centre of the tie beams.

The numerous dark storerooms and passages and two stair-wells have been thrown into one large hall, entered by a new front door in the forecourt, and lit by a new window beside the front door. This hall, which has an oak-block floor and is decorated in cream, connects by means of arches and new glazed doors with the original front hall, which has been converted into a garden room. The front door of Trafalgar Cottage, opening on to the terrace, has been replaced by a french window.

A recess in the main hall takes the new staircase, which occupies some of the waste space between the two old outside walls, and over it, in its original position, is the large window intended by John Tucker for the staircase that was never built. As the ground level is higher at this point, the staircase recess forms a kind of dais, two steps higher than the rest of the hall. In detail the staircase has been designed to preserve the early nineteenth-century flavour, which, in spite of the fact that much of the house was added after 1850, still seems to linger

BARNELLS, BRANSCOMBE

A general view of the house from the south.

predominantly. The same is true of the new front door, french windows and other woodwork details, and only in the more utilitarian parts of the house has a more modern treatment seemed suitable.

The double drawing-room, with its three long windows on to the terrace, is now used partly as a dining-room, and a new french window has been added at its further end. It has an oak-block floor, pale green wallpaper and cream paint.

The original dining-room, as far as possible away from the kitchen, is now used as a study, and has two new windows overlooking the forecourt.

The large kitchen has been improved with a new window, built-in cupboards, stainless steel sinks and a patent cooker. As it was not possible to arrange for a maids' sitting-room, a cheerful open fire has been provided in the kitchen.

The old scullery has been converted into boiler and pump rooms, and the washhouse into an engine-room for the pumping and lighting plant. Part of the dairy, with its thick walls and stone floor, makes a cool larder.

The original cottage kitchen has been given a little more light by forming an open yard outside its window and with the addition of a sink and cupboards has been converted into a pantry, connecting with the dining-room by means of a service hatch. This hatch is also a cupboard on the pantry side, and a baize-lined drawer to accommodate table silver pulls out into both pantry and dining-room.

Upstairs the old dark bedrooms at the back have been cleared away to give a really spacious landing, and the front bedroom facing the head of the stairs has also been added to the landing. Bathrooms, w.c., housemaid's closet and airing cupboard have been built along the back of the house. The end of the passage to the east has been partitioned off to form a lobby between the principal and one of the back bedrooms. The lobby is fitted with a lavatory basin, mirror and cupboards, and a self-contained suite is thus formed, consisting of bedroom, lobby, dressing-room and bathroom.

The garden, of which the best feature remains the terrace directly in front of the house, with its sunny aspect and beautiful view, has been little altered. The chief addition, apart from the forecourt, is a new level lawn, approached by steps from a paved path outside the drawing-room french window, and surrounded by a low stone retaining wall.

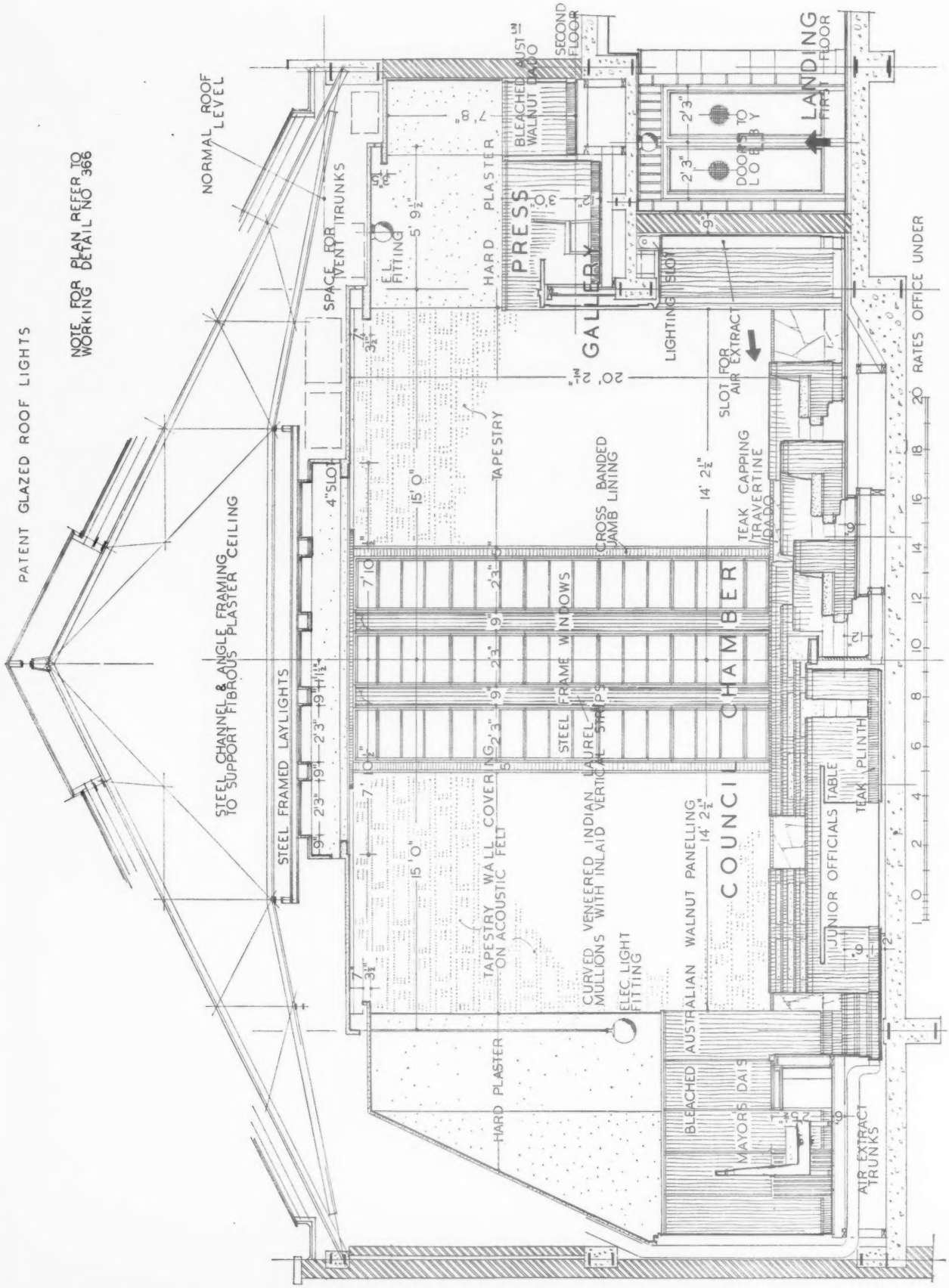
WORKING DETAILS : 367

COUNCIL CHAMBER • HORNSEY TOWN HALL • REGINALD H. UREN

The council chamber dado panelling is in Australian walnut, Indian laurel and teak, and the seating is of Australian walnut veneer with red hide upholstery. The floor is of pine for close-carpeting. The tapestry wall panels mask acoustic slabbing, and the marble dados below the windows and tapestry panels cover heating coils. The longitudinal section overleaf should be read in conjunction with the plan published last week (Working Detail No. 366) and the cross section to be published in our issue for December 12.

WORKING DETAILS : 368

COUNCIL CHAMBER • HORNSEY TOWN HALL • REGINALD H. UREN



Section of the council chamber illustrated overleaf.

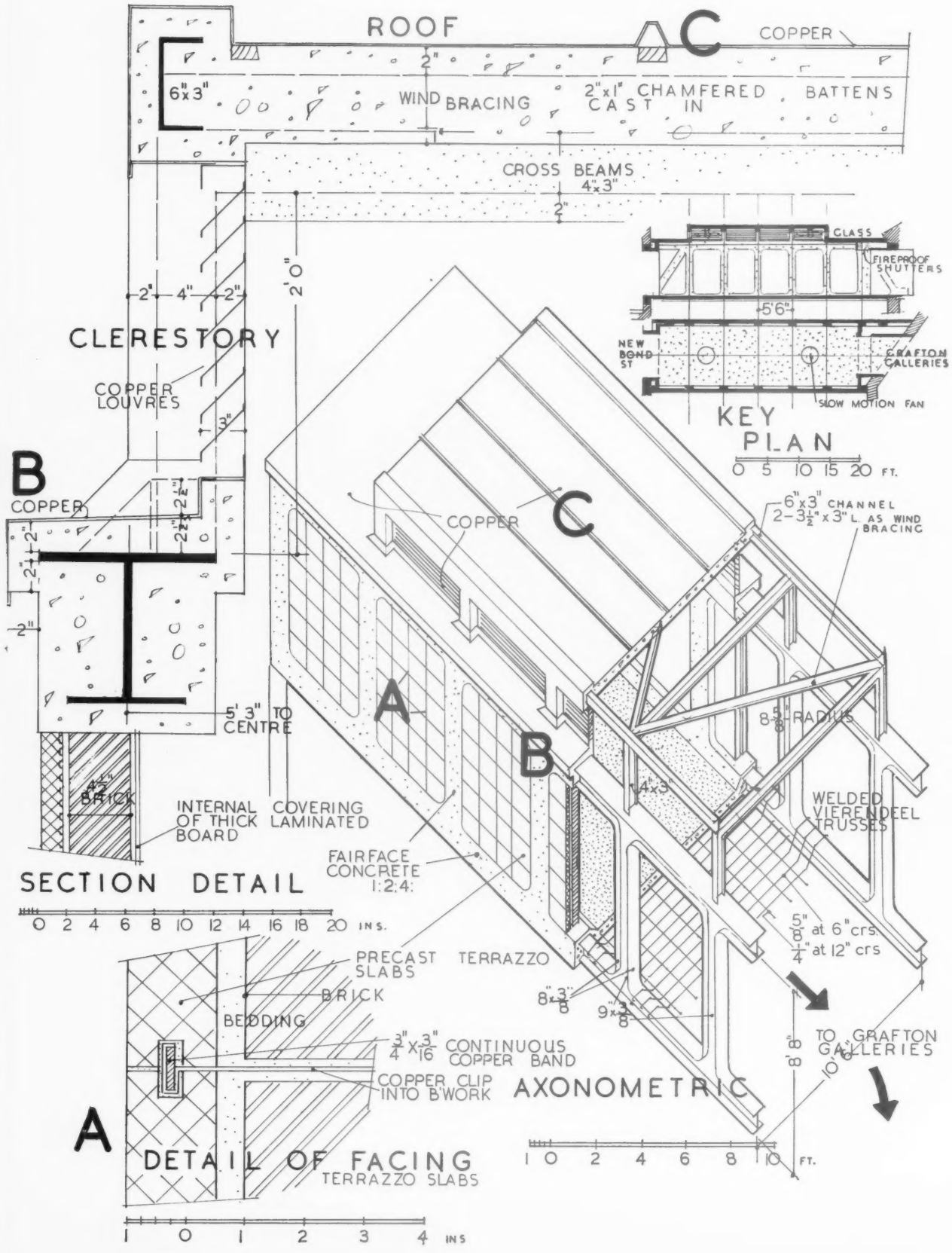
WORKING DETAILS : 369

WELDED BRIDGE • BUILDING CENTRE, NEW BOND STREET, W.1. • L. H. BUCKNELL

Above is a photograph of the welded steel trusses used in the construction of the new bridge joining the Building Centre with the new extension in the Grafton Galleries. Provision had to be made for a future doorway in one panel of the truss; limitations of ceiling height at this point and of roadway clearance under the bridge dictated the vertical height of the trusses, the depth of the booms being made appropriate to the door opening, and the floor depth and the panel spacing adjusted to suit the width of the door and the skew at one end of the bridge. These conditions made it impossible to use the ordinary lattice truss, and the Vierendeel type was therefore adopted; in this truss the sheer usually carried by the diagonals is transferred to the abutment by the stiffness of the chord and the vertical members, and by the stiffness of the joints by which they are connected. The bridge is arc-welded, the trusses being built up of flat plates assembled so that they are continuous past the corners where the stresses are high, the joints being made at points of minimum stress. Continuous felt packing is used between the stanchion casings and the walls of the old buildings to avoid any damage by expansion. An axonometric and details are shown overleaf.

WORKING DETAILS : 370

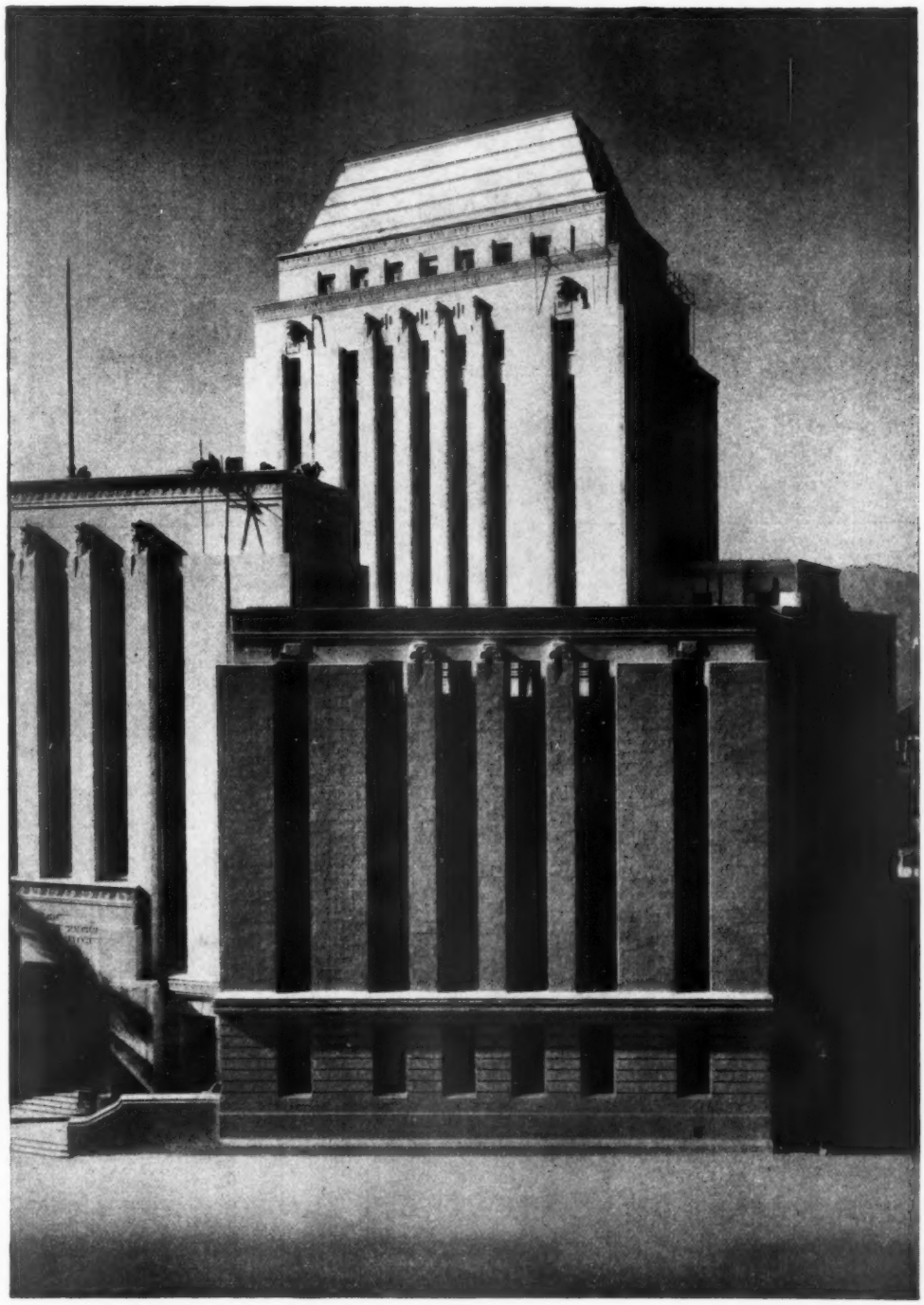
WELDED BRIDGE • BUILDING CENTRE, NEW BOND STREET, W.1. • L. H. BUCKNELL



Axonometric and details of the welded bridge illustrated overleaf.

HONG KONG AND SHANGHAI BANK, HONG KONG

DESIGNED BY PALMER AND TURNER



SITE.—*The new head offices of the Hong Kong and Shanghai Bank occupy a site of 56,000 feet super. adjoining Statute Square, Hong Kong, with a frontage of approximately 250 feet both to Des Voeux and Queen's Roads.*

The demolition of the former head offices and other buildings on the site was completed in two months, despite difficulty encountered in breaking up the old reinforced concrete strongrooms.

The site is on reclaimed land, and the foundations were therefore sunk to the granite of the former harbour bed, and enclosed with 40 ft. sheet piling. The excavation was a work of considerable difficulty, a large number of granite boulders having to be blasted.

CONSTRUCTION.—*The foundations are of the concrete raft type, heavily reinforced and waterproofed throughout; the strong rooms being protected on the steel-mesh reinforced concrete system.*

The building is steel-framed with high tensile steel, and has reinforced concrete floors, and stone facings.

ELEVATIONAL TREATMENT.—*The wall facing is of Kowloon stone, the windows of steel and bronze (specially designed to withstand hurricanes), and the entrance doors of bronze.*

The photograph shows the elevation to Statute Square.

NEW BUILDING FOR THE HONG KONG

DESIGNED BY PALMER AND TURNER

INTERNAL FINISH.—*No wood whatever is used in the bank. All doors, finishes and office equipment generally are of steel, walls of plaster, and floors of a thick linoleum.*

The principal vestibules, banking halls, and stairways are finished with bronze doors, balustrades and grilles; floors, walls and ceilings being variously of Kowloon granite, Ashburton stone, Botticino, Belgian black and Swedish green marbles, travertine and mosaic. The counters are of reinforced concrete, sheathed in metal. Lavatories have tiled walls and floors and marble partitions.

EQUIPMENT.—*The service and mechanical equipment of building is on a very extensive scale. It includes: flush panel heating, air conditioning, hot-water heating, and refrigerator systems; incinerating and pumping plants; electric lighting, emergency lighting, clocks, and light signalling systems; lift gear for eleven high-speed lifts; full telephone equipment; and fire and burglar alarm systems.*

Above is a general view showing some of the important buildings on the river front, for which the architects are Messrs. Turner and Palmer. 1, Union Building; 2, Hamilton House; 3, Hong Kong and Shanghai Bank; 4, Metropole Hotel; 5, Wayfoong House; 6, Customs House; 7, Chartered Bank; 8, Cathay Hotel and Sassoon House; 9, Site for Bank of China; 10, Yokohama Specie Bank; 11, Yangpzse Insurance Building; 12, Glen Line Building; 13, Embankment Building; 14, Broadway Mansions.

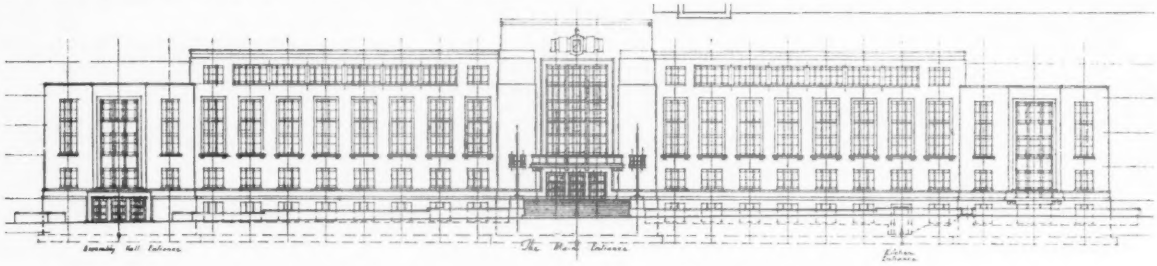
On the left is a general view of the new building for the Hong Kong and Shanghai Banking Corporation.

For list of general and sub-contractors, see page 860.

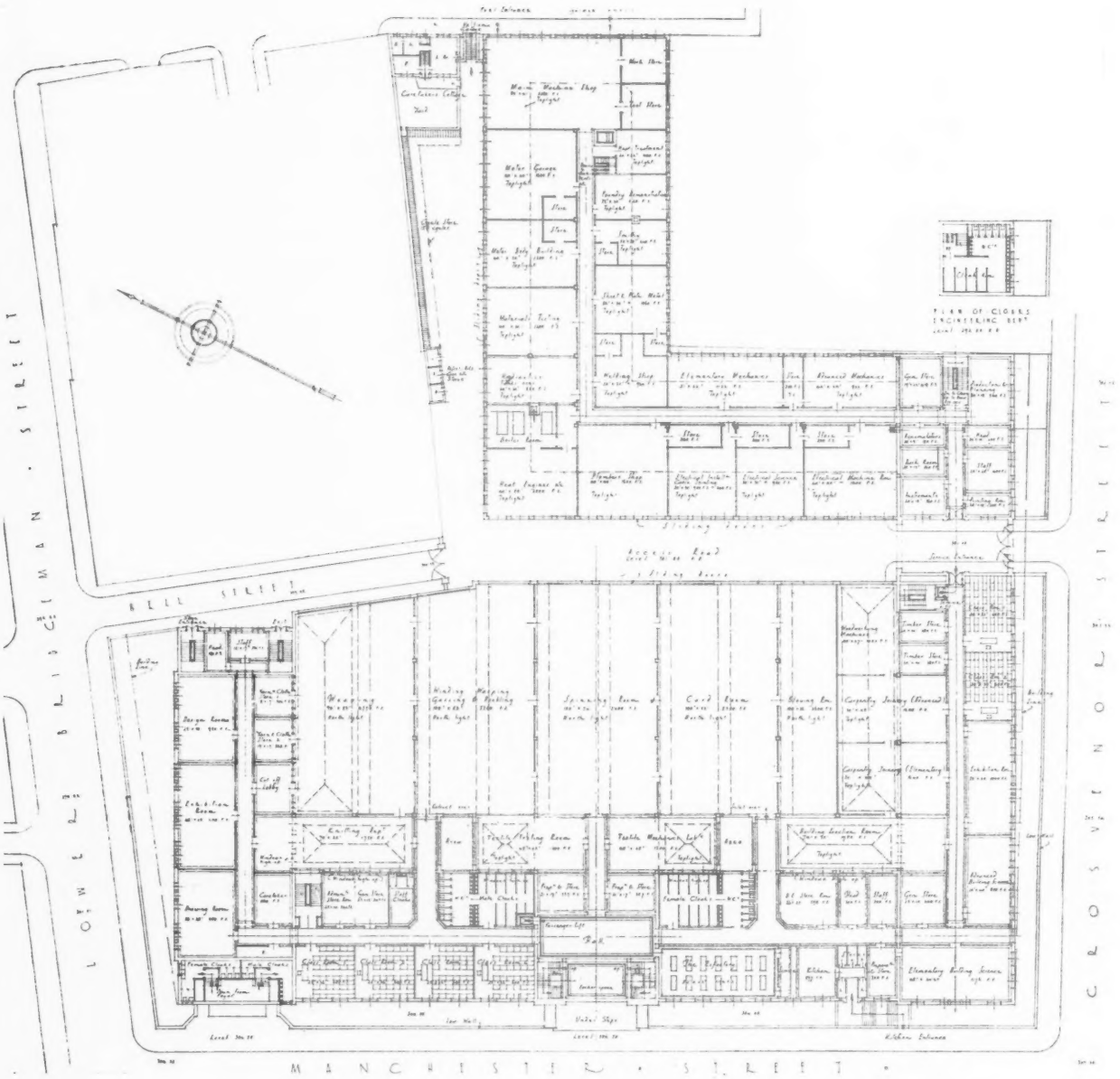
AND SHANGHAI BANK, HONG KONG

GROUND FLOOR PLAN

COMPETITION FOR EXTENSIONS TO THE

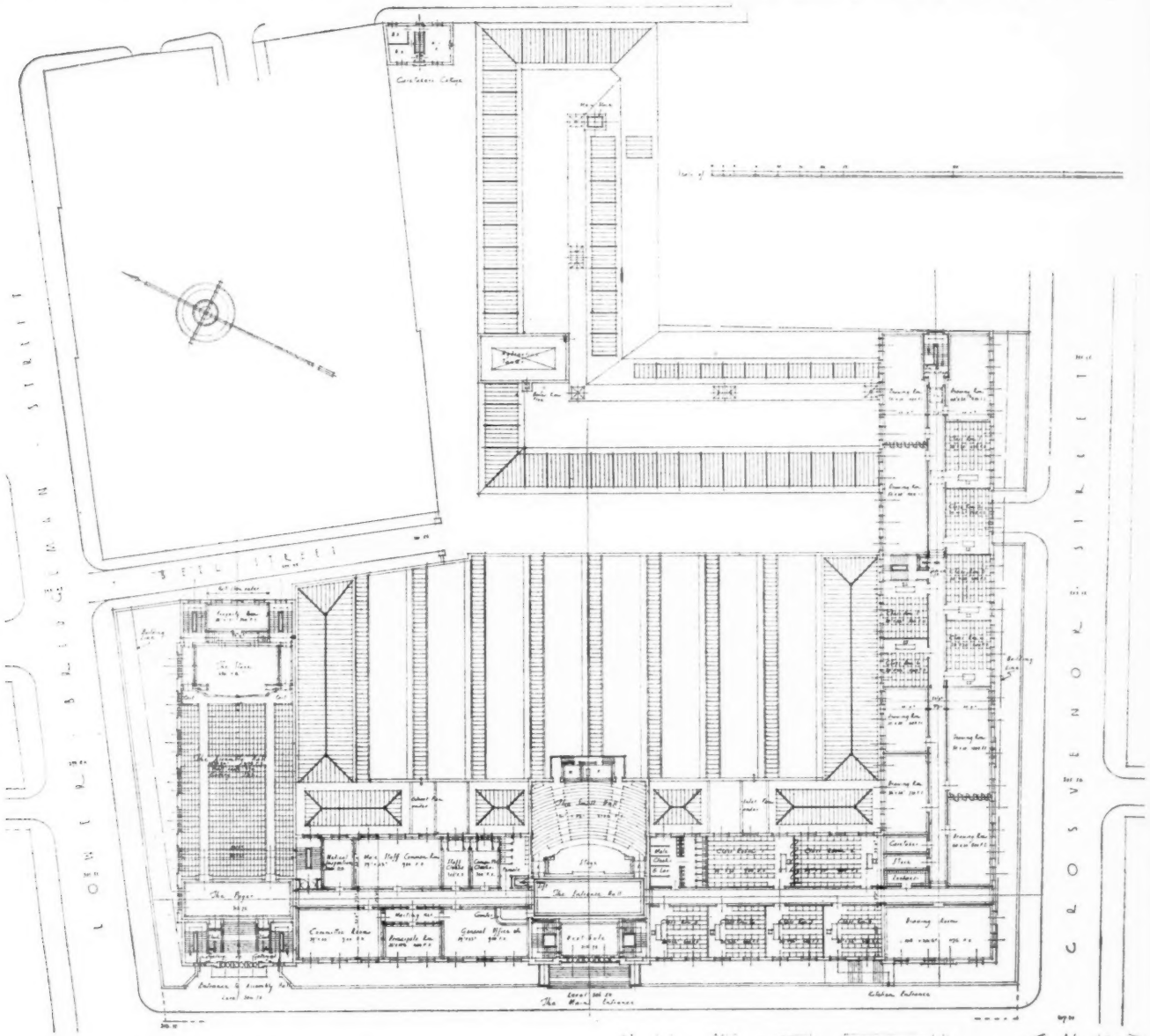


ELEVATION TO MANCHESTER STREET



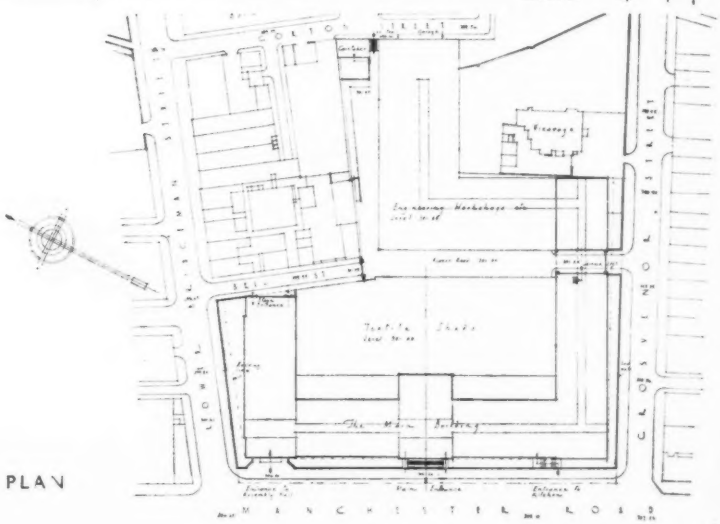
LOWER GROUND FLOOR PLAN

MUNICIPAL TECHNICAL COLLEGE, BOLTON



UPPER GROUND FLOOR PLAN

WINNING DESIGN BY LANCHESTER AND LODGE, IN ASSOCIATION WITH ERNEST E. DAVIS

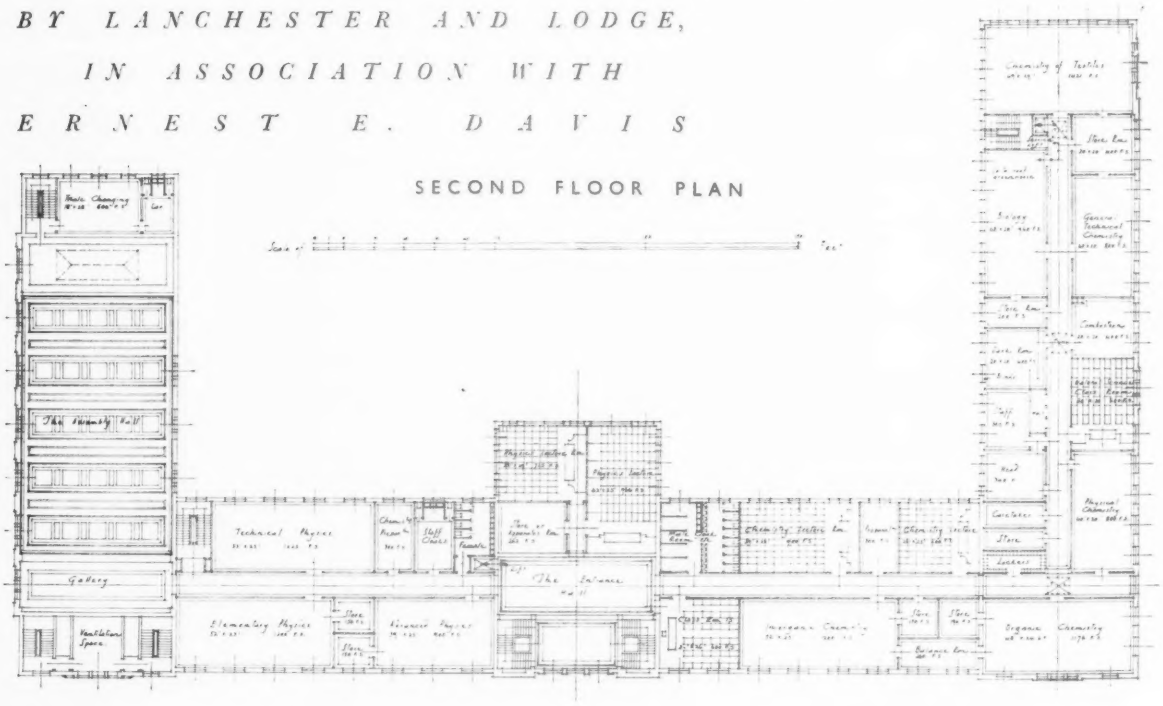


SITE PLAN

THE BOLTON COMPETITION: WINNING DESIGN

BY LANCHESTER AND LODGE,
IN ASSOCIATION WITH
ERNEST E. DAVIS

SECOND FLOOR PLAN



The result of the competition for extensions to the Technical College, Bolton, was announced last week as follows:

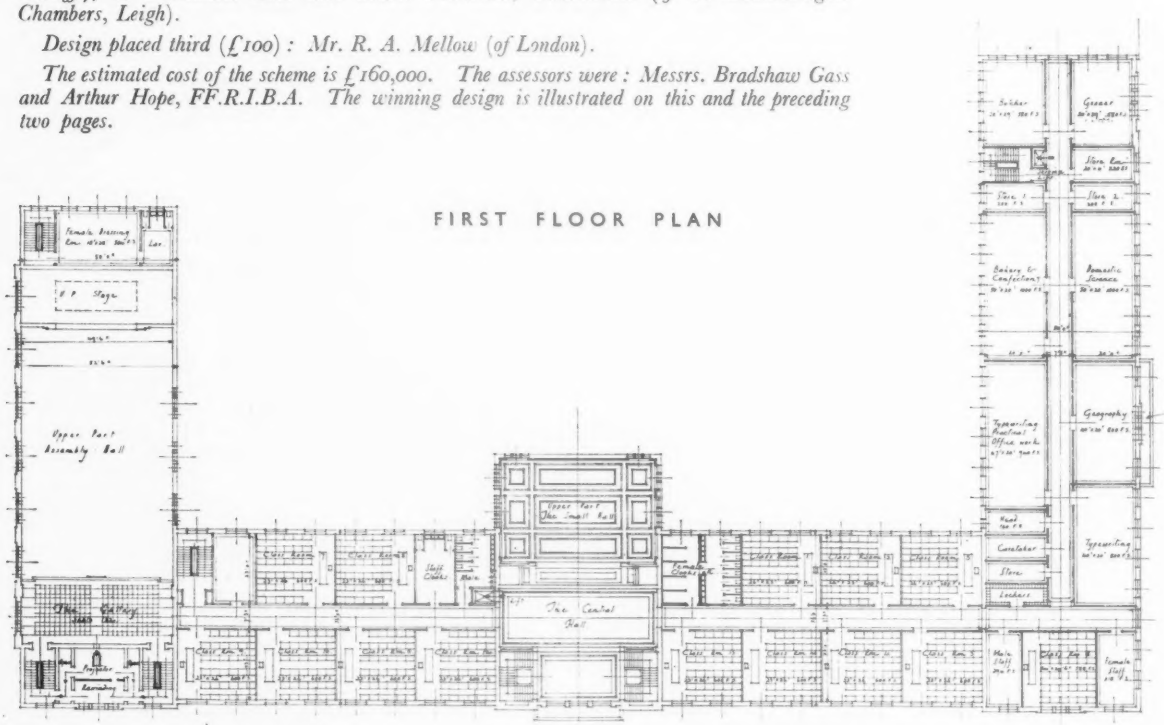
Design placed first (£500): Messrs. Lanchester and Lodge, FF.R.I.B.A., in association with Mr. Ernest E. Davis, A.R.I.B.A. (of 19 Bedford Square, London, W.C.1).

Design placed second (£250): Mr. Percy E. Thomas, P.R.I.B.A. (of 10 Cathedral Road, Cardiff), in association with Mr. Ernest Prestwich, F.R.I.B.A. (of 10 Bradshawgate Chambers, Leigh).

Design placed third (£100): Mr. R. A. Mellow (of London).

The estimated cost of the scheme is £160,000. The assessors were: Messrs. Bradshaw Gass and Arthur Hope, FF.R.I.B.A. The winning design is illustrated on this and the preceding two pages.

FIRST FLOOR PLAN



L I T E R A T U R E

QUANTITIES

[*By J. W. S. STEPHENS*]

Elements of Quantity Surveying. By Arthur J. Willis, F.S.I. London: Crosby Lockwood. Price 15s.

TO teach quantity surveying is acknowledged generally to be a difficult task. The extent to which a student benefits by the instruction he receives, either from an author or a lecturer, depends on his knowledge of the fundamentals on which the subject is based. The student of quantity surveying must possess an exceptionally sound knowledge of building construction, materials and procedure, otherwise his studies will become a process of memorization and guesswork instead of a carefully built edifice of well-understood facts. This is evident to the reader of any textbook of the type under review.

Mr. Arthur J. Willis combines the experiences of practitioner, lecturer, examiner and author, consequently he is able to select the essential data with sureness and confidence and present it in its most readily understandable form.

Elements of Quantity Surveying has been written primarily for the surveying and building students preparing for the intermediate stage of their qualifying examinations, but it should prove to be of assistance and interest to the architectural student and practitioner. The need for the architect to posssess an accurate knowledge of quantity surveying is not a matter of general agreement; indeed, a considerable difference of opinion exists concerning the degree of specialization which the architect should undertake outside his own immediate sphere. The advent of the consultant engineer has tended to isolate the knowledge of specialists' works allied to building; but, on the other hand, the architect and the quantity surveyor are becoming more closely associated in their work and will continue to do so, no doubt, whilst the present system continues. It is evident, therefore, that nothing but advantage can result if the one acquires more exact information concerning the work of the other.

The book under review has been arranged with considerable care, and the attractive manner in which the subject matter is presented should be commented upon.

The various processes involved in the preparation of bills of quantities are dealt with, step by step, beginning with a valuable section on "Mensuration."

The opening chapters—in fact, more than one-half of the book—deal with "taking off," the actual measurement of the items of labour and material, and the remaining chapters are concerned with "working up," the arrangement of the measurements into an order which has become generally acceptable in daily practice.

The examples taken are based on structures of domestic character, and since it is impossible to incorporate in one textbook examples of work involved in all types of construction, this arrangement is probably the most satisfactory.

The accompanying illustrations of working drawings, from which the typical dimensions are taken, are inserted to face the measurements taken therefrom, thus facilitating the study of the subject matter, and the drawings are of such size as to enable the reader to scale the dimensions directly.

The several sections of the work taken —viz., foundations, brickwork, floors, roofs, finishings, etc.—are dealt with in separate chapters in a very clear manner, and an innovation is the introduction of a preamble to the chapters, enumerating the clauses contained in the Standard Method of Measurement, to which the items measured have reference.

The incorporation of a large number of pages of facsimile "taking off," together with scale drawings set in convenient positions, whilst not being original, is certainly of great value in a book of this character.

The appendices contain a list of abbreviations employed in taking off, some of which are not in general use, charted information as to the order in which items of measurement are arranged and a useful reference to the units of measurement employed generally.

This textbook should provide a sound introduction for those who intend to become members of the profession it deals with and to those who will be associated closely with its activities.

SHORTER HISTORY

[*By G. E. CHARLEWOOD*]

The Historical Architecture of Britain. By F. R. Smith. London: Pitman. Price 3s. 6d.

THERE is a light and pleasant touch about the opening chapters of this book which promises well for the remainder, and it must essentially be regarded only as a superficial study of the architecture of Britain. But even so, one would imagine that it should convey a suggestion of the underlying framework, and this it fails to do. The constructional members do not hang together as well as they might, and as a result the description is somewhat confused.

The first chapter deals with prehistoric Britain, and in sixty pages of short description the author manages to touch on all the subsequent styles of English architecture until the end of the seventeenth century—a period which alone has filled shelves in many a library with works of famous architectural writers.

Many of the earlier historians were inclined to keep the mediæval styles in distinct watertight compartments, thereby failing to indicate the natural growth that took place from style to style, and the present author has not managed to avoid this error.

Even though the book is intended presumably for those who only desire a superficial knowledge of the historical architecture of Britain, more could have been made of the fundamental principles which governed the subsequent changes of style, and rather more definite information of the reasons for the consecutive development of vaulting, buttresses and window treatment would have had great value in explaining the illustrations and teaching the casual student to recognize the various stages of architectural growth. As it is, the reader will be at some pains to discover why in each phase the various characteristic features of that phase were carried out in the manner described.

Throughout all the Gothic periods a wonderful and completely logical spirit of architectural development prevailed, and this the author does not express convincingly.

The illustrations are for the most part very sketchy and in some cases merely confuse the text. Take, for instance, Plate XXXIX, which shows two examples of Elizabethan gables, both straight in outline, one being in stone and the other in half timber, and compare them with the text, which states that "the gables of this (Elizabethan) period were usually of curved outline and were sometimes formed in brick, sometimes in stone." The reader may well be excused should he feel a little at a loss.

At the end of the Elizabethan period the author appears to feel that he has accomplished his task, and the Jacobean style, of which there are a large number of interesting examples throughout the land, receives scant consideration. Yet this was a period which influenced our architectural development most vitally.

The subsequent Renaissance is described in an earlier chapter, and when the number of Georgian villages, providing as they do a constant charm to our æsthetic senses, is borne in mind, the reader will surely experience a feeling of disappointment, after reading the Renaissance chapter, that no mention is made of later developments.

TECHNICAL SECTION: 40

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

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

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

AIR CONDITIONING

(Continued)

9. DISPOSAL OF HEAT FROM CONDENSER

THE heat extracted by the refrigerating machine, together with the heat equivalent of the power input to the compressor, raises the temperature of the condenser water by an amount depending on the quantity of water circulated through the condenser.

The lower the temperature of the condenser water the less power will be required to produce a given refrigerating effect, and conversely with a given size of plant the greater will be the amount of cooling possible.

Water from a well or from the main supply will always be the coldest, the former at 55 deg. F. and the latter at about 65 deg. F. in summer. The quantity to be wasted, however, generally rules this method out. For instance, a 200-ton plant (2,400,000 B.T.U.'s per hour and power input equivalent to 400,000 B.T.U. hour) with a 20 deg. rise through the condenser would require

$$\frac{2{,}400{,}000 + 400{,}000}{20 \times 10} = 14{,}000 \text{ gals. per hour.}$$

This at 1s. per 1,000 gallons would exceed the cost of current for running the compressor by about three times.

Cooling the water by evaporation is therefore generally resorted to. Evaporative coolers depend on the ability of water to evaporate freely when in a finely divided state, extracting the latent heat necessary for the process from the main body of water, which is then returned, cooled, to the condenser. In the case stated above the consumption of water with an evaporative cooler (assuming no loss due to spray being lost by windage) would be only

$$\frac{2{,}400{,}000 + 400{,}000}{10 \times 1{,}000 \text{ (latent heat approx.)}} = 280 \text{ gals. per hour.}$$

The temperature of the cooling water is largely dependent on the wet bulb temperature. An efficient cooler may bring the water down to within 4 deg. or 5 deg. of this temperature. Thus, with a maximum summer wet bulb of about 70 deg. cooling water at 75 deg. may be possible. This is often well below the dry bulb temperature.

Types of evaporative cooler are the spray pond (Fig. 251), cooling tower (Fig. 252), Raschig ring cooler (Fig. 253) and fan draught (Fig. 254).

In the spray pond the water is delivered through sprays over an open pond. The pond occupies a considerable area which can generally only be found at ground level. Louvred fences are provided to prevent undue loss by wind.

With the cooling tower type the water is allowed to drip over a series of wooden slats in a louvred enclosure. It may require to be 20 ft. or more in height and its appearance often rules it out.

The Raschig ring cooler employs a series of perforated trays containing special porcelain rings giving an immense area for contact between water and air. The water is dripped over the rings and a fan is used to force air upwards through them.

The fan draught is probably the most useful type for air conditioning owing to its compactness and light weight. One type of this illustrated in the figure is nothing more than an air washer, used simply on account of its evaporative effect.

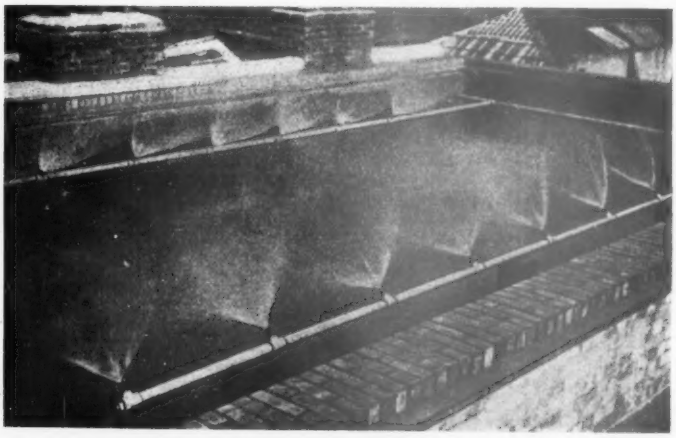


Figure 251. *Spray pond for cooling condenser-water.*

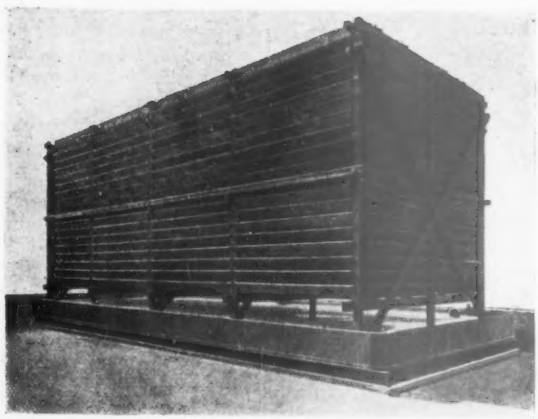


Figure 252. *Cooling tower for condenser water.*

10. METHODS OF CLEANING AIR

Air introduced into a building by an air conditioning system or by a plain ventilation system must be cleaned to rid it of the dust, soot and other impurities which it contains, particularly in crowded cities.

If the air is not so treated, dirty marks quickly make their appearance on the ceilings or walls near every inlet grating; dust and dirt settle down on to papers, desks and furniture in the rooms, and the ducts become coated inside with a layer of fine black pow-

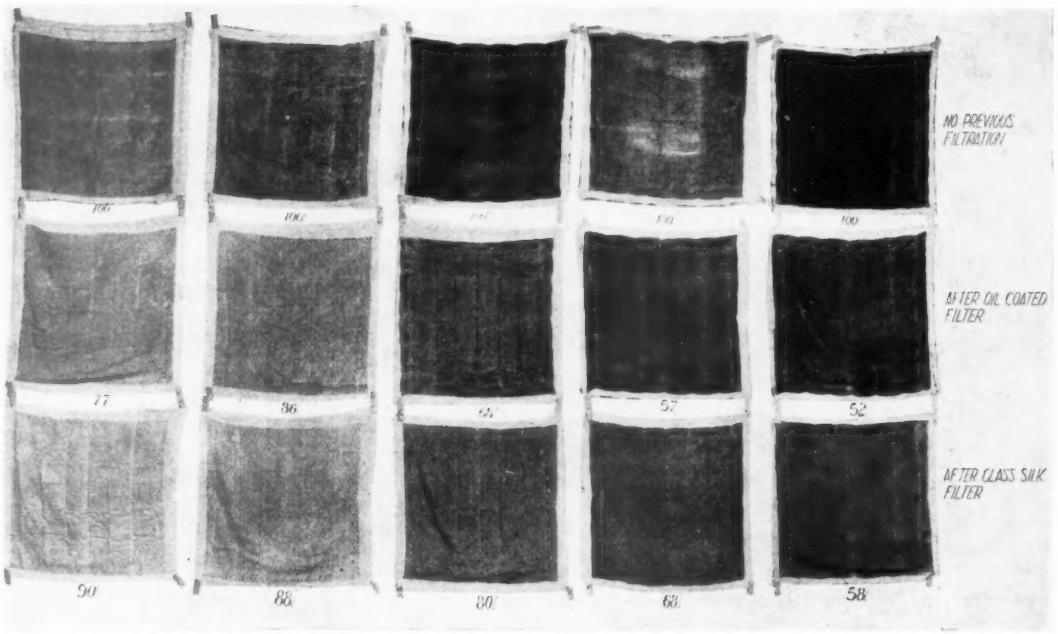


Figure 255. *Results of tests on air impurity by weight method. The five groups of three muslins show the dirt extracted from the three conditions of filtering (i.e., without filtering; after coated filter; and after glass silk filter). The outside conditions vary from clear to very foggy.*

dery material which has the unhappy knack of suddenly detaching itself in chunks, giving rise to serious complaints of damaged papers or soiled clothing. These effects are unfortunately noticeable to a less marked degree even when a so-called air filter is provided.

Indeed, the cleaning of air to anything like 100 per cent. efficiency is one of the most difficult problems of air conditioning.

It is important that the meaning of "efficiency of filtration" should be properly understood. The efficiency is obviously expressed by the ratio :

$$\frac{\text{Solid material extracted by filter}}{\text{Total solid material in entering air.}}$$

The question is, however, whether the ratio shall be established on a count basis, i.e., number of particles, or on a weight basis.

If the number of particles is to be counted the usual method is to discharge a sample volume of air through a jet on to a gelatine-covered glass slide, as in the Owen jet test. The slide is then examined through a microscope and the visible particles per unit area are counted. Those below a certain size, such as 5μ (1μ = 10^{-5}, cms.) are usually excluded as being too small for counting.

On the weight method a screen of muslin of known weight is used. This is arranged so that the air is passed through for a given period at a definite speed. The muslin is weighed again on completion of the test. A test is taken at the same time both on the inlet and on the outlet side of the fan. The muslin does not collect the whole of the dirt in the air and the weights of materials collected are only relative.

A series of tests on the latter method with two types of commercial filter was carried out at the instigation of the authors over a number of weeks recently. A photograph of the muslins is shown in Fig. 255, and the relative efficiencies are shown under each. These tests, backed up by general experience, show that on a weight basis the filters are much less efficient than on the counting basis, thus showing that the ultra-microscopic particles form a very large proportion of the total.

The oil coated filter referred to later has, for instance, an efficiency of 97 per cent. on the counting method, but the results by weight show something of the order of 70 per cent.

The count basis is not, therefore, satisfactory. Obviously a 1 in. mesh would be 100 per cent. efficient if all particles less than the size of cricket balls were excluded. By omitting anything less than 5μ a similarly erroneous result is obtained with air filters.

With filters having efficiencies of the order of 70 or even 80 per cent. it is apparent that a very serious amount of dirt passes through, as for every 10 hours' run the equivalent of two or three hours' unfiltered dirt is delivered with the air.

The extremely fine particles referred

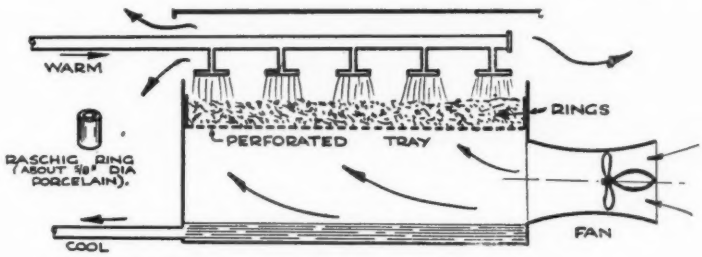


Figure 253. *Raschig ring cooler for condenser water.*

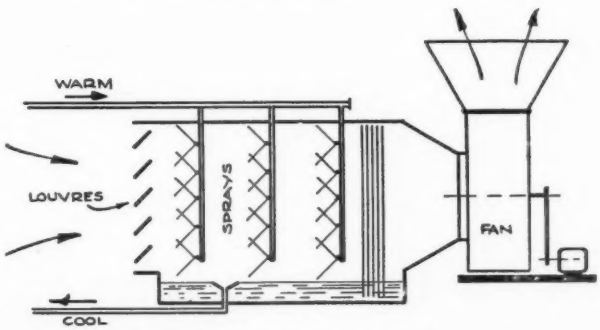


Figure 254. *Fan draught cooler for condenser water.*

Figure 256. *Typical oil-coated sectional air-filter.*

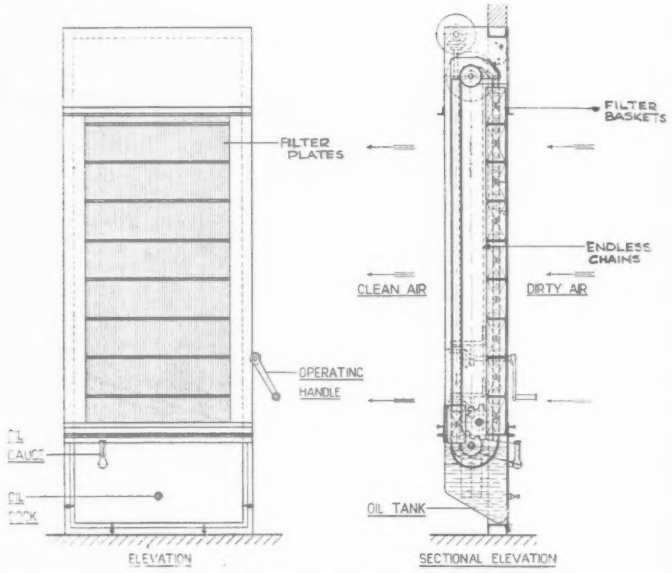


Figure 257. *Self-cleaning oil-coated air-filter.*

to are probably due to the smoke or carbon in the atmosphere. Such material is not caught in a wet air washer since (as is well known) soot cannot be mixed with water. In fact, the surface tension of drops of water in a spray is too high for anything but the heavier and more gritty material to be brought down.

Oil-coated filters, as has been mentioned, do not collect this fine material, and recently there has been a return to fabric filters. An oil-coated filter followed by a fabric filter appears to give much better results than either alone, but the space taken up and cost is a serious disadvantage. Further, as the fabric becomes dirty its resistance goes up and less air is passed, so that frequent cleaning or replacement of the material is necessary.

A recently developed filter consisting of steel wool promises to give good results, and if aluminium wool is used it is claimed that even fog can be eliminated. Cotton wool is believed to be as nearly 100 per cent. efficient as any material. Its resistance is, however, extremely high, it rapidly clogs up and is highly inflammable. It was used for many years in the House of Commons, but was said to cause a serious deadness of the air, though whether this is due to some electrical change which is brought about or whether to some small proportion of dust being necessary for vitality is not properly understood.

Oil-coated filters may be of the cell type shown in Fig. 256. These are cleaned by removing them in sections, dipping in hot caustic soda solution, washing, re-oiling, draining and replacing. This periodical cleaning entails stopping the plant or having spare cells for use during the cleaning period. Self-cleaning filters have been developed to overcome this disadvantage and one type is shown in Fig 257. An air speed of about 400 ft. per minute on the face area is common with these types.

Fabric filters have a filtering medium of close mesh with a heavy nap. They operate generally at about 150 feet per minute and owing to the immense area necessary are arranged in zigzag formation. Partial cleaning by vacuum cleaner is possible, but after a period the material has to be renewed. The steel wool, glass silk and other mat types are uncleanable and when dirty are thrown away and replaced by new.

The cleaning efficiency of any filter appears to follow to some extent its resistance to air flow. Tests of the oil-coated types show that their resistance is about ·375 in. to ·6 in. w.g. according to the type and air speed and that for the fabric and steel wool types ·75 in. to 1 in. or more. Cotton wool 2 in. thick has a resistance of 2 in. to 3 in. w.g.

11. TREATMENT OF AIR WITH OZONE, ETC.

Ozone is a gas with a chemical symbol O_3 (as compared with oxygen O_2), and is stated to be present in the air in small quantities, particularly at the seaside, though recent medical opinion seems to contradict this.

It is unstable and readily breaks down into O_2 plus O. The detached atom appears to combine rapidly with almost any other available substance, thus producing a virulent oxidizing effect. This property gives ozone various applications, such as killing bacteria, eliminating smells and clarifying water and other substances.

When ozone is mixed with ventilation air organic material in the atmosphere is destroyed, and this is stated to have a beneficial effect on health.

Ozone by itself is probably odourless, but in practice it is inevitably mixed with various oxides of nitrogen which give it a rather penetrating smell unpleasant in concentration. For use in ventilation systems the mixture has to be extremely weak, about $\frac{1}{2}$ to 1 part per million, when it is just discernible, but not sufficient to be objectionable.

Ozone is produced by silent electric discharge or continuous sparking between parallel plates or sheets of gauze. An alternating current of about 8,000 volts is applied to a series of such plates and the air is allowed to pass between *en route* to the fan. Fig. 258 gives a section through one type of ozone plant. A filter to remove dust is fixed on the intake to the ozone plant. Only a small proportion of the total air supply is drawn through.

Ozone is also produced in small quantities by the ultra-violet ray lamp, but this method has not yet been applied to ventilation.

Another method of treating air is by ionisation. This is being experimented

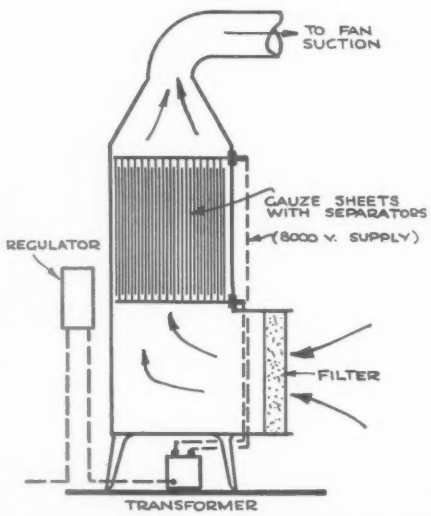


Figure 258. *Section through oxonizing plant.*

with in the United States, but though a mass of research has been done there is little practical result at present. Ionisation may be described crudely as a change in the physical state of the air whereby the constituent atoms become electrically charged. This change is caused naturally by sunlight, and it is found that in dull dark weather the vitalizing ions are absent. It is supposed that by creating them artificially air equal to that on a bright summer day may be produced. We must wait some time before this is sufficiently developed for general use.

Mention should perhaps be made here of various disinfectants which may be introduced into the washer water tank to impart a faint pleasing smell to the air stream. These are no doubt beneficial for a crowded auditorium, wherein the effect is partly psychological.

12. SELECTION OF POSITION OF THE FRESH AIR INTAKE

It might be thought that the purest supply of air would be obtainable at the roof of a building, but experience shows that in many instances this is not the case.

At roof-level air is certainly free from street dust, but chimneys of the same or neighbouring buildings may, with certain states of the wind, deliver their smoke or fumes right into the intake.

Two cases of this sort have occurred in the authors' experience. In both the offending source of contamination was due to a neighbouring building erected after the one in question. In one it was found that the main flue from the oil-fired boilers was brought up within a few feet of the intake. In the other a kitchen incinerator flue, giving on occasion a variety of pungent effluvia, was found to exist some 30 or 40 feet away.

In the first case a solution had to be effected by a complete diversion of the intake shaft to another position at a lower level. In the second case a fan was installed to draw the incinerator smells away and discharge them at a great distance from the point of danger.

These cases are only mentioned to point out how important the proper selection of the intake position is.

It would appear in most cases that the best point is to be found at low level, rather than high up. For instance, a case of an air supply drawn down from an open area adjacent to a busy main street is known to give ideal results. The dust drawn into the intake at such a point is mostly of a gritty nature, which can be easily extracted by a washer or air filter and motor exhaust fumes do not appear to give trouble. A corresponding intake on the roof would draw in smoke and soot, both of which are most difficult, if not impossible, to capture.

If a point half way up the elevation of a building can be found, this is probably the best. It must, however, be clear of windows where fire or smoke might occur, and particularly of lavatory windows.

There is no general solution to the problem of the fresh air intake position, as obviously every case requires examination of orientation, possible sources of contamination, position of air conditioning plant, and so on.

There is, however, a general warning: avoid chimneys, even if they are a hundred feet away.

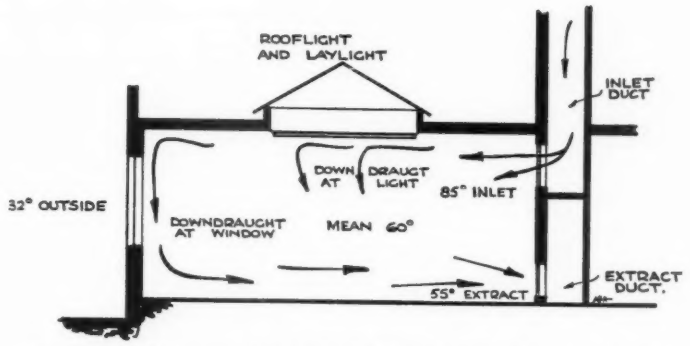


Figure 259. *Diagrams of temperature in a room warmed by hot air only.*

13. METHOD OF WARMING THE BUILDING IN WINTER AND THE EFFECT OF AIR CONDITIONING

When the question of air conditioning for a building is being considered, the problem of heating has to be considered with it.

Two methods are possible :—

(*a*) The heating may be accomplished by warming the incoming air above the required room temperature.

(*b*) Direct radiation may be installed to take care of the heat losses, in which case the air supply is delivered at the same temperature or slightly below that of the room.

The former is, in effect, the same as the "plenum" system already discussed. In raising the air to the necessarily higher temperature, a certain lifelessness is produced, and downdraughts from windows and roof lights (as in Fig. 259) are bound to result. Further, for warming the building prior to occupation the fans have to be run possibly for some hours, and this means added expense.

If such a method is adopted, the air should be completely re-circulated during the warming up period.

If the case under consideration is a hall or room entirely without heat loss, such as a theatre surrounded by warmed rooms and corridors, the case is different, as no undue heating of the air for pre-warming will be necessary. Even so, a small amount of direct radiation to keep the room tempered is an advantage.

Where the air conditioned spaces have heat losses, as is usually the case, the problem of heating is much better dealt with by method (*b*). The direct radiation is installed on the basis of balancing the conduction or fabric losses only without any allowance for air change. When the ventilation system is not in use the full temperature will not be obtainable, since there is certain to be a small air loss. As soon as the inlet and extract fans are started, the air interchange will cease, since it is usual to extract only three-quarters of the inlet. The internal temperature will then rise to that desired, and thermostatic control on the radiator will prevent the temperature going higher.

The advantage of this method is that the walls, furniture, etc., are tempered before the occupants enter, and, as stated, the air may be introduced a few degrees below that in the room. This gives a freshness not obtainable with the air heating method.

The provision of direct radiation is, of course, more costly than the additional heating battery surface for air heating, so that where economy of first cost is the prime consideration, method (*a*) has to be adopted.

14. COST OF INSTALLATION OF AIR CONDITIONING SYSTEMS AND THEIR RUNNING COST

The cost of the ventilating plant portion of the system, i.e., fans, ducts, heaters, washers, piping, etc., depends very largely on the lay-out, usage, occupancy, etc., and is not related to the cube as in the case of a heating system. Costs for building similar in size to the case considered, may be misleading, and it is not possible to give figures as was done for heating systems. The refrigeration portion is entirely dependent as regards size and cost on occupancy, fabric and sun heat gains.

It may seem that a refrigeration plant has such a short period of use as to be an extravagance, but it is noticeable in practice that once a plant has been installed it is used over a much longer period than might at first be expected, owing to the beneficial results which accrue.

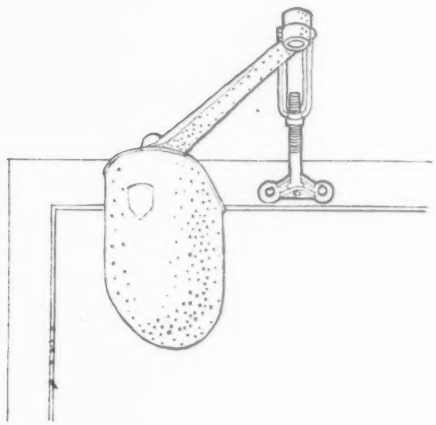
15. VENTILATION GENERALLY

The above summary of the problems associated with air conditioning has

not mentioned the much wider field of simple ventilation.

Refrigeration and cooling plant is costly to instal and run, and for all but the summer period the same results are achieved by ventilation only, provided this includes means for cleaning the air and humidifying it in the winter, and provided no highly concentrated occupancy is involved.

A further application of simple ventilation is the exhausting of air from lavatories, kitchens, etc. The former may require anything from 10 to 20 changes of air per hour, and the latter 20 to 60. Enclosed boiler houses are best dealt with by positive inlet and natural extract ventilation, so as to increase rather than diminish the chimney draught. The inlet has to supply the air for combustion in the boilers, plus a sufficient volume to keep the temperature down to reasonable limits. This generally calls for something between 10 and 30 changes per hour.



TRADE NOTES

[*EDITED BY PHILIP SCHOLBERG*]

Door Closers

THERE are plenty of door closers on the market which work perfectly well mechanically but which are rather obtrusively untidy to look at. The new Guardian closer, recently introduced by Messrs. Nettlefold, should therefore start with an initial advantage and sell on appearance alone.

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As the headpiece to these notes shows, the closer is perfectly simple, having only a thumbscrew for regulating the closing speed and no other visible fixing screws or projecting whatnots. Fixing is simple, and a stiff paper template is provided for marking out the screw points so that the closer and its arms are in the right relative positions.

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So far criticism is easy enough, but the real test of any door closer is reliability. This design seems sound enough mechanically, but I pointed out to Messrs. Nettlefold that I had not the least idea whether their closer would be working just as well in a year's time. To this they have retorted by sending a sample closer to be fitted to the door of this office, which is left open about fifty times a day more often than it ought to be.

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It is now ten days since the closer was fixed, and it still survives, in spite of the attentions of visitors who insist on playing with the check action adjustment to see how slowly they can make the door close. In a week or so I imagine that this maltreatment will have ceased, and that it will be left to do its proper job without interference. The manufacturers have agreed that the behaviour of their product shall be reported in these notes, so that a further bulletin will be issued in about six months or so.

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Quite as a sideline, I have realized that a good strong closer spring tends to discourage those maddening people who just pop their heads round the corner of the door and shout.

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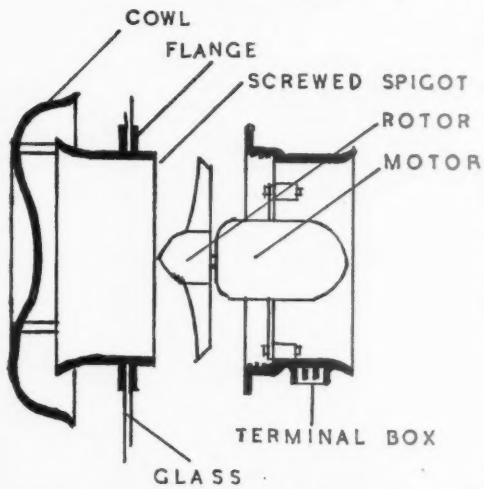
Finally, to revert for a moment to technicalities, this closer is also suitable for external use on gates and suchlike. For doors opening outwards the manufacturers produce a bracket for fixing in the reveal, but there is no reason, given reasonably plain mouldings, why the spring should not be fixed upside down on the architrave, where it would be well out of the way. Prices vary from 20s. 6d. for light internal doors to 34s. for external use. This applies to the satin bronze finish. Chromium and galvanised finishes are also obtainable, and there is a 12 months' guarantee.



The Axia extract fan can be fitted to any window by cutting a 6⅝ in. hole, and exhausts 200 cubic ft. of air a minute. (*See note on this page.*)

Plaster Board

Stoniflex, a new plaster board, made by D. Anderson and Sons, is a base for plaster, taking the place of laths in the case of ceilings and partitions, and needing only a skimming coat of plaster to give a smooth finish. The board, in 3 ft. by 2 ft. 8 in., 2 ft. 6 in. or 2 ft. 4 in. sizes to suit various joist spacings, is nailed direct to joists or battens. When the surface is to receive only a skimming coat of plaster a 4 in. width of plaster is laid over all joints, and into this 4 in. scrim is pressed; when the joints are set hard the whole surface is skimmed. If two coats of plaster are used the scrim is not needed.

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The manufacturers of the board make a special hardwall plaster for finishing and issue special directions for one and two coat work.

F. R. S. Y.

Ventilating Fans

Another small extract fan has recently been made available for use on small domestic jobs or in offices with no central ventilating plant. Like the Wyndo fan referred to in these notes a couple of months ago, it is fitted by the simple process of cutting a 6⅝ in. hole in any window and wiring up.

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The fan casing is made in brown bakelite (other colours to order) and the two halves screw together on rubber washers. The motor is rated at only 10 watts, and extracts air at 200 cu. ft. per minute. The price is £4 14s. 6d., and the manufacturers are Winsor Axia Fans, Ltd., who market it with a 12 months' guarantee.

THE BUILDINGS ILLUSTRATED

HONG KONG AND SHANGHAI BANK

(Pages 849 to 851).

Structure.—Dorman Long & Co., Ltd., steel frame in "Chromador"; Henry Hope and Sons, Ltd., steel and bronze windows; Caxton Floors, Ltd., hollow tile flooring; Jardine Engineering Corp., Ltd., Bradley & Co., waterproofing.

Finishes.—W. W. Jenkins & Co., Ltd., marble; Raoul Bigazzi, mosaic work and marble fixing; W. W. Wagstaff and Simplex Gypsum Products Co., Ltd., decorative plaster work and suspended ceilings; Wilkinson, Heywood and Clark, paint; Dunlop Rubber Co., Ltd., rubber flooring; Michael Nairn & Co., Ltd., lintile and linoleum flooring; Maw & Co., Ltd., wall tiles and ceramic floors; Pilkington Bros. (China) Ltd., glass.

Equipment.—G. N. Haden and Sons, Ltd., air conditioning and heating; Chubb and Sons Lock and Safe Co., Ltd., strong room

and treasury doors, safes and fittings; H. H. Martyn & Co., Ltd., bronzework (screens, gates and doors); Bromsgrove Guild, Ltd., bronze decorative window panels; Arts and Crafts, Ltd., Shanghai, bronzework (railings and balustrades); General Electric Co., Ltd., bronze laylights, electric motors and starters for air conditioning installation; Soy Chong, Shanghai, cast iron gates and bronze light fittings; Otis Fensom Co., Canada, interior steel doors; Corbin Lock Co. and James Gibbons, Ltd., door locks and furniture; Jardine Eng. Corporation, Ltd., electrical equipment and lighting; Hongkong Telephone Co., Ltd., telephone equipment; Shanks & Co., Ltd., and Crane, Ltd., sanitary fixtures; American Brass Co. and The Empire Brass Co. of Canada, "Anaconda" anti-corrosive water pipe and fittings; William Jacks & Co., Ltd., patent metal folding shutters; Arts and Crafts, Ltd., Shanghai, blinds and curtains; Roneo Ltd., steel furniture and metal partitions; Otis Elevator Company, Canada, lifts.

HOUSE AT BARNELLS, BRANSCOMBE (pages 841 to 844). The general contractors were E. Barnard & Co., who were also responsible for the central heating. The principal sub-contractors and suppliers included :—

Richard Tiles, Ltd., "Recesso" fittings and tiles, tiling; Horsley Smith & Co., Ltd., woodblock flooring; Aga Heat, Ltd., "Aga" cooker; Bratt Colbran & Co., Ltd., grates; Crane, Ltd., radiators and boilers; Gooding and Son, "Lister-light" generating plant, water supply; Troughton and Young, Ltd., electric light fixtures; Septic Tank Co., Ltd., sewage disposal plant; A. Johnson & Co. (London), Ltd., "Savestane" stainless steel sinks.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BECONTREE. *Library and Clinic.* The L.C.C. has sold sites in Porters Avenue and Neasham Road, Becontree, to the Barking Corporation for the erection of a library and a clinic.

BECONTREE. *Factory.* The L.C.C. has sold an acre site in Oxlow Lane, Becontree to Messrs. A. and H. Simmons, for the erection of a toy factory.

CROYDON. *Enlargement.* The Corporation is to enlarge the poor law institution at a cost of £38,460 and has appointed Mr. Henry Berney as architect.

CROYDON. *Houses.* The Corporation is to erect 36 houses on the Crown Hill site and 66 on the Davidson Road site.

DARTFORD. *Mental Hospital.* The Kent C.C. is to obtain a site in the Dartford rural district for the erection of a mental hospital for 1,200 patients.

EDMONTON. *School.* The Education Committee has approved plans for the erection of an elementary school at Oakthorpe at a cost of £24,515.

GREENWICH. *Flats.* The B.C. is to erect flats, by direct labour on the Lamb Lane clearance area, at a cost of £47,394.

HAMMERSMITH. *Extensions, etc.* Plans passed by the B.C.: Extensions, Godophin and Latymer School, Iffley Road, for Mr. V. O. Rees; extensions, 84-8, King Street, for Messrs. F. W. Woolworth & Co., Ltd.; factory and squash racquets club, Beavor Lane, for Mr. E. B. Musman; factory extension, Aldine Place, for Mr. L. O. Woodward.

MOTTINGHAM. *School.* The Kent Education Committee has approved plans for the erection of central and junior schools at Mottingham.

NORBURY. *Flats and Houses.* Messrs. Wates, Ltd., are to erect 20 flats and 24 houses in Warwick Road, Norbury.

NORTHOLT. *Extensions.* Plans have been prepared for The Gaumont-British Picture Corporation, Ltd., for the proposed erection of dressing rooms, workshops, restaurant, etc., at Islip Lot, Western Avenue.

NORTHOLT. *Cinema Extensions.* Messrs. M. E. and H. O. Collins, FF.R.I.B.A., have submitted plans for alterations and additions to the Playhouse Cinema in Ruislip Road.

PADDINGTON. *Redevelopment.* The L.C.C. is to redevelop the North Wharf Road area of Paddington at a cost of £19,000.

POPLAR. *Redevelopment.* The L.C.C. is to redevelop the Dock Cottage area, Poplar, at a cost of £48,000.

POTTER'S BAR. *Church Hall.* The Middlesex Licensing Committee has approved plans for a new Roman Catholic church hall.

SOUTHGATE. *Institute.* The Middlesex C.C. has now purchased a site at Powys Lane for the proposed erection of a technical institute.

SOUTHWARK. *Flats.* Messrs. A. S. and J. S. C. Soutar are to erect a block of flats at Bear Lane, Southwark.

STANMORE. *School.* The Middlesex Education Committee has acquired a site in Crowshott Avenue, Stanmore, for the erection of an elementary school.

STEPNEY. *Development.* The L.C.C. is to redevelop the Chicksand Street area of Stepney at a cost of £65,000.

SUNBURY. *School.* The Middlesex Education Committee has purchased a site in Chertsey Road, Sunbury, for the erection of an elementary school.

TEDDINGTON. *Shops and Flats.* The British Land Co., Ltd., are to erect shops and flats in Broad Street, Teddington.

TOOTING. *Flats.* The Wandsworth B.C. has decided to erect a further 42 flats on the Tooting Grove site, at present being developed, and have arranged with the present contractors (Messrs. C. F. Hawkins & Co., Ltd.) to carry out the work.

TWICKENHAM. *Houses.* D.S.M. Estates, Ltd., Hounslow, propose to erect 58 houses on the Rosalind Estate, plans for which have been approved.

WILLESDEN. *Shops and Flats.* Mr. W. F. Thorpe is to erect shops and flats on the North Circular Road, Willesden.

WOODFORD. *House.* The Hill Farm Estate Co. are to erect 78 houses in Kensington Drive, Woodford.

SOUTHERN COUNTIES

BEXHILL. *Flats.* Mr. R. A. Kerry has prepared plans for Mr. H. W. Stevens for the erection of a block of flats in De La Warr Parade, Bexhill.

BEXHILL. *Development.* Mr. E. Bunce is to develop land for Mr. J. W. Cripps off Church Street, Bexhill.

BROCKHURST (HANTS). *Church.* A new Baptist church and schoolroom is about to be erected at Netherton Road to plans submitted by Mr. L. M. Field.

ETON. *Studios.* The R.D.C. has approved plans, submitted by Messrs. Henry Boots, for the proposed erection of studios and other buildings at the Pinewood Film Studios at Iver Heath.

GUILDFORD. *Omnibus Station.* The Corporation has approved plans for the construction of an omnibus station on the cattle market site and the rearrangement of the cattle market.

GUILDFORD. *Houses, etc.* Plans passed by the Corporation: 10 houses, Sheepfold Road, for Mr. J. B. Waltham; 15 houses, Ashenden Road, for Mr. H. Ashenden; 34 flats and three shops, High Street, for Mr. H. J. Foot; five houses, Asolat Way, for Mr. C. T. Corps.

LEYBOURNE GRANGE. *Mental Colony.* The Kent C.C. is to extend the Leybourne Grange mental colony at a cost of £119,367.

SOUTH-WESTERN COUNTIES

PAIGNTON. *Houses.* Messrs. E. C. and R. G. Rees are to erect 50 houses at Primley Park Paignton.

TORQUAY. *School.* The Torquay Education Committee has approved revised plans by Mr. Widdows, for the erection of a senior school for 960 at Audley Park.

MIDLAND COUNTIES

BURSLEM. *Garages, etc.* Plans passed: 12 garages, Moorland Road, for Mr. R. C. Grant; extensions, Burslem Mills, Federation Road, for Messrs. Richards Tiles, Ltd.; four houses, off Milton Road, for Mr. B. S. Phillips.

MEIR. *Cinema.* Messrs. Clewlow, Knight and Plumpton are to erect a cinema in Sandon Road, Meir, Staffs.

STOKE-ON-TRENT. *Extensions.* The Corporation is seeking sanction to borrow £90,628 for extensions at the city maternity hospital.

EASTERN COUNTIES

CHELMSFORD. *Houses.* Plans passed by the Corporation: 10 houses, Broomfield Road, for Messrs. W. and A. Pudney; nine houses, Seventh Avenue, for Messrs. R. H. Currie and Sons; two shops and flats, Highfield Road, for Messrs. Tyler and Dobie; two houses, Thord Avenue, for Messrs. David Salmon, Ltd.; two houses, Longstomps Avenue, for Mr. J. R. Dowst; ten houses, Writtle Road, for Mr. W. G. Parker; extensions, Arc works, for Messrs. Crompton Parkinson & Co., Ltd.; two houses, Widford Village Road, for Mrs. R. Suckling.

CHELMSFORD. *Schools.* The Education Committee has appointed Mr. H. W. Allardyce as architect for junior and senior schools on the Moulsham estate.

LOUGHTON. *School.* The Essex Education Committee has obtained land in Roding Road, Loughton, for the erection of a senior school.

WALTHAM ABBEY. *School.* The Essex Education Committee has obtained a site at Sergeants Green, Waltham Abbey, for the erection of a junior school.

NORTHERN COUNTIES

ACCRINGTON. *Grammar School.* The Lancashire Education Committee has purchased additional land for the erection of a proposed grammar school at Accrington.

BARROW-IN-FURNESS. *Cinema.* The Corporation has approved the building line for a new cinema to be erected by Mr. James Brannen in Abbey Road.

BIRTLEY. *Masonic Hall.* Messrs. Corking, Stephenson and Gillis are to erect a masonic hall in Birtley Lane, Birtley.

BLACKHALL. *Houses.* Mr. W. Trotter is to erect 37 houses in Elm Avenue, Blackhall, Durham.

BLACKPOOL. *School.* The Blackpool Education Committee has purchased a site in Preston Old Road for the erection of a junior school.

BLACKPOOL. *Baths and Health Centre.* The Corporation has instructed the borough engineer to prepare plans for the erection of baths and health centre on the Pembroke estate at a cost of about £150,000.

DARWEN. *Grammar School.* The Lancashire Education Committee is to erect a grammar school at Darwen, at a cost of £46,100.

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Messrs. Drytone Joinery Ltd., have removed to new premises at 60 Arlington Road, N.W.1.

RATES OF WAGES

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

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

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

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

CURRENT PRICES

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

WAGES

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

MATERIALS

EXCAVATOR AND CONCRETOR

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

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	15	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
3½" ,, ,, ,,	,,		1	10
5" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

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

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

CARPENTER AND JOINER

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

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

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:

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

	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10			
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9		
,, 3"-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.

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

SMITH AND FOUNDER—*continued.*

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

		s.	d.	s.	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	5
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	5
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	5

PLUMBER

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

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

PLASTERER

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

GLAZIER

	s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
,, ,, 26 oz. ,, ,,			,,	3
Flemish, Arctic, Figures (white)*			,,	7
Blazoned glasses			,,	2 6
Reeded; Cross Reeded			,,	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			,,	6
Crown sheet glass (n/e 12 in. x 10 in.)			,,	2 0
Flashed opals (white and coloured)			,, 1 0 and	2 0
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
,, ,, 26 oz. ,, ,,			,, †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 ,
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	0
Linseed oil	gall.		2	3
Boiled oil	,,		2	4
Turpentine	,,		4	11
Patent knotting			14	0
Distemper, washable	cwt	2	0	0
,, ordinary	,,	2	0	0
Whitening	,,		4	6
Size, double	firkin		3	0
Copal varnish	gall.		13	6
Flat varnish	,,		14	0
Outside varnish	,,		10	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 8
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S.	7

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

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 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, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2 16 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
" to stanchions	"	7
" to staircases	"	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
¼" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1¼" " " " "	"	2 3 0
¾" × 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
1¼" " " "	"	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, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1¼" deal four-panel square, both sides, door	F.S.	2 0
2" " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
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
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

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

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

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

4" cast-iron ¼-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	"	3
Rounded angle, small	"	1½
Plain cornices in plaster, including dubbing out, per 1" girth	"	1 6
1" granolithic pavings	Y.S.	4 6
1½" " "	"	6 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	1 8 6
9" × 3" " " " "	"	8
Extra, only for small quadrant angle	F.R.	

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	"	3 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	"	2 9

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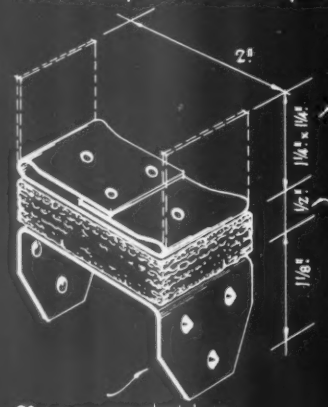
ACOUSTIC BULLDOG FLOOR CLIPS :

1. 2" SHORT LEG ACOUSTIC CLIP.

For concrete floors or hollow tile floors with a min. screed of 1".



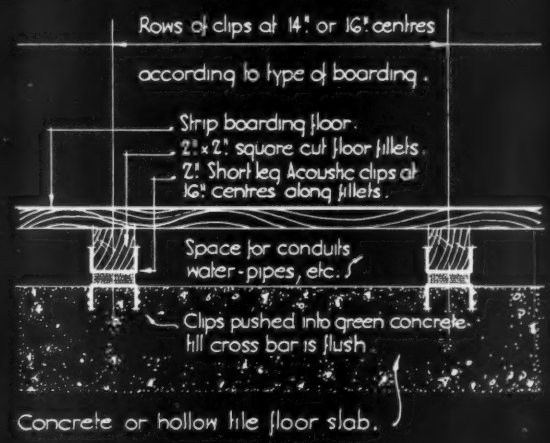
20 gauge pointed legs, three anchoring lugs to each.

Ears on same plane as legs when raised for the reception of floor fillets.

½" Asbestos type pad twice riveted to cross bar of legs and once riveted to cross bar of ears.

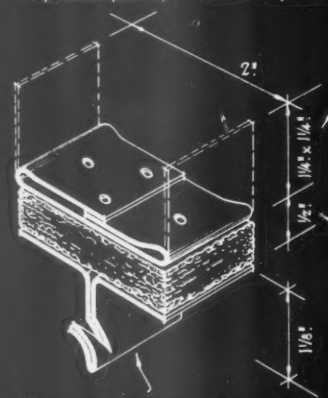
Three punched holes in each ear to enable floor fillets to be nailed in two places when butted. Special friction-tight nails are supplied with clips.

1½" SCALE SECTION THROUGH CONCRETE FLOOR showing 2" short leg acoustic clips in position.



2. SINGLE LEG ACOUSTIC CLIP.

For precast floors, or hollow tile floors with a minimum screed of 1".



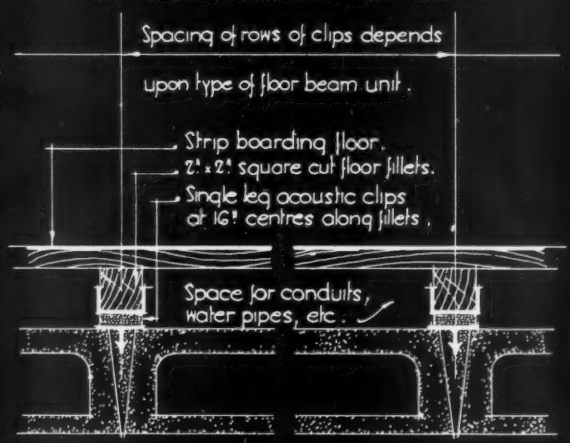
20 gauge one-piece leg, with twisted ends.

When flooring is ready to be laid the ears are raised with the claw of a hammer and the floor fillets nailed through the three punched holes.

½" asbestos type pads twice riveted to cross bar of legs and once riveted to cross bar of ears.

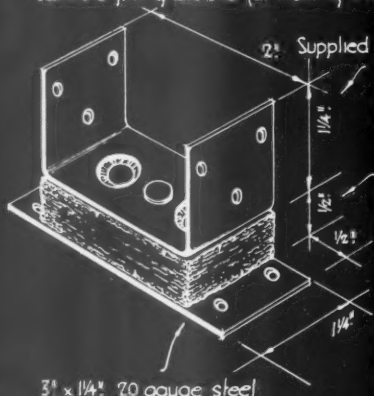
The leg is pushed into the green screeding between the floor units.

1½" SCALE SECTION THROUGH PRECAST BEAM FLOOR. Showing single leg acoustic clips in position.



3. WOOD JOIST ACOUSTIC CLIP.

NOTE - this clip may also be used in concrete floors if suitable fixing blocks (or nailing screed) are available.



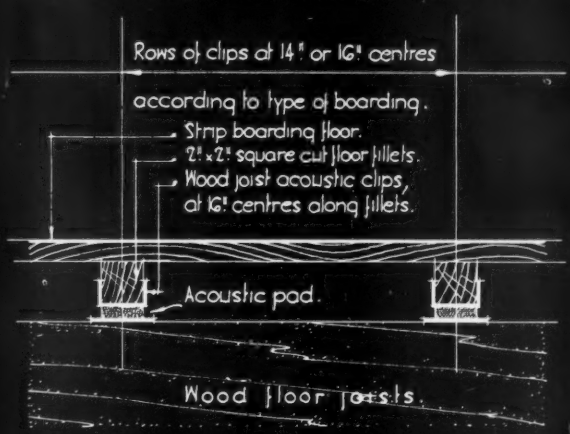
3" x 1¼" 20 gauge steel fixing plate.

Supplied with raised ears for the reception of floor fillets when flooring is ready to be laid.

½" asbestos type pad twice riveted to fixing plate and once riveted to cross bar of ears.

Fixing plate is provided with two punched holes at either end for nailing clip to top of joist, fixing block, etc.

1½" SCALE SECTION THROUGH WOODEN FLOOR. Showing wood joist acoustic clips in position.



Information from The Adamite Company Limited.

INFORMATION SHEET · SHEET METAL ACOUSTIC BULLDOG FLOOR CLIPS.

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FLOOR CLIPS

Product : Acoustic Bull-Dog Clips

General :

The acoustic floor clips shown on this Sheet are made of pressed steel in two parts with an insulating pad between to provide a method of fixing floor battens to precast or in-situ concrete work, and at the same time to provide insulation to resist the transmission of sound vibration.

The Clip :

The three types of acoustic clip shown are each made on the same principle, the lower metal portion being designed for burying in concrete or for fixing by nailing. To this metal base, an insulating pad of asbestos type is fixed by two rivets.

The upper metal portion of the clip is secured to the pad by a central rivet.

All rivet-heads are sunk deeply into the pad so that, when the floor is fully loaded, there is no metallic contact between the two metal parts of the clip.

Sound Insulating Tests :

Tests by the Building Research Station show that on a specimen floor consisting of $\frac{3}{4}$ in. wood flooring on 2 in. by 2 in. battens secured to a 4 in. concrete floor by acoustic floor clips, the sound reduction effected was 13 phons greater than in a similar floor using ordinary clips. Tests also show that the sound reduction effected by draping $\frac{1}{4}$ in. asbestos blanket over fillets fixed to ordinary floor clips was only 3 phons, in every case the impact machine being shod with rubber.

Prices and Quantities :

The list price of all types is £25 per thousand, special quotations may be obtained for all clips in quantity.

This represents an extra 23.6 pence per square yard over the cost of ordinary clips.

With clips spaced at 16 in. c. to c., on battens 14 in. apart c. to c., 5.8 clips are required per square yard.

Manufacturers : Adamite Co., Ltd.

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

Telephone : Temple Bar 6233-4-5

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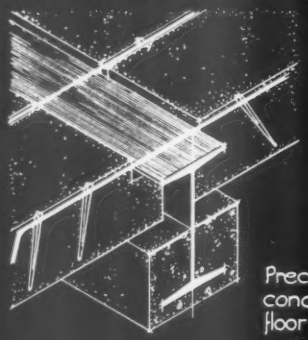
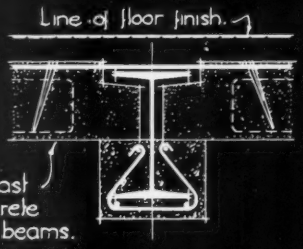
TYPES OF BEARING IN STEEL FRAMED STRUCTURES FOR SIEGWART PRECAST CONCRETE HOLLOW BEAMS.



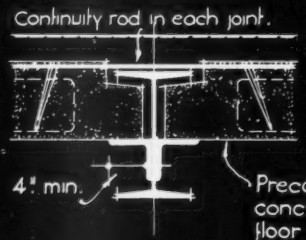
Isometric detail.

1. SQUARE CONCRETE ENCASURE BEARING.

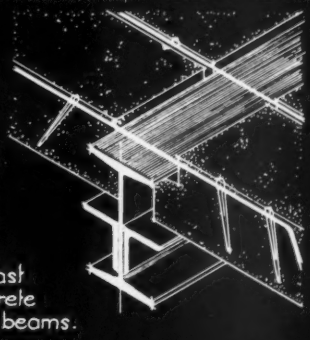


Section.

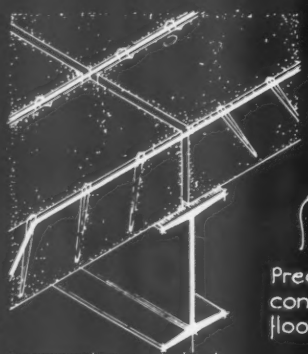
2. STEEL ANGLE BEARING (4" Min.)



Section.

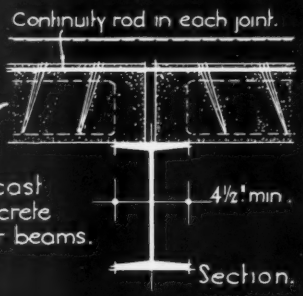


Isometric detail.



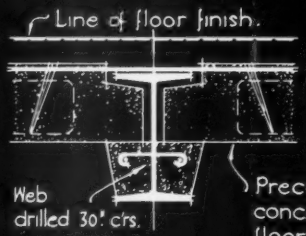
Isometric detail.

3. ROLLED STEEL JOIST BEARING.

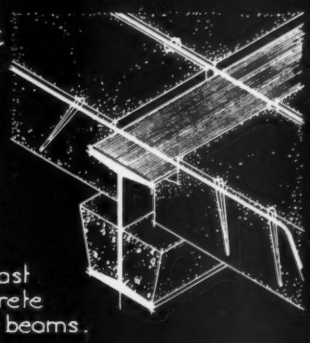


Section.

4. HAUNCHED CONCRETE BEARING.

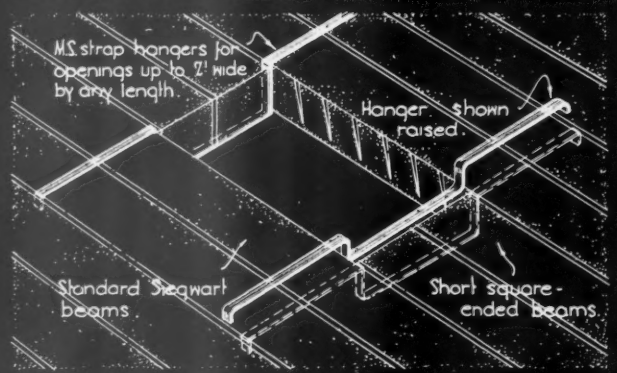


Section.



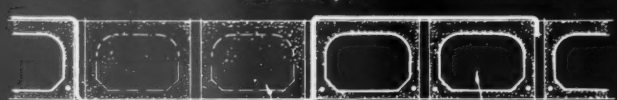
Isometric detail.

METHODS OF TRIMMING OPENINGS IN SIEGWART PRECAST CONCRETE HOLLOW BEAM FLOORS.



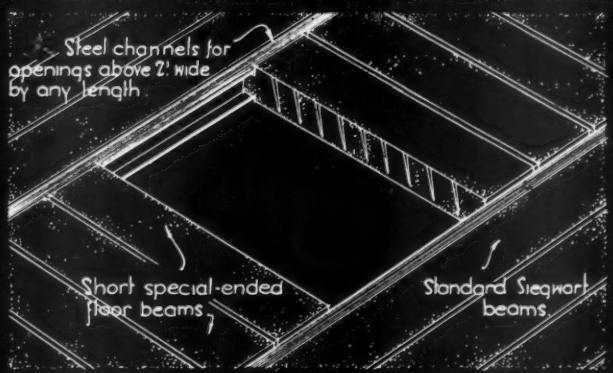
Isometric detail.

Section across opening.



M.S. strap hanger. Short square-ended beams. Standard Siegwart beams.

NOTE - For openings not exceeding 2'0" in width short square-ended beams forming the ends of the opening are supported on M.S. strap hangers. These transfer the load to the full length beams which are strengthened as necessary.



Isometric detail.

Section across opening. Steel channel.

Short special-ended beams. Standard Siegwart floor beams. Expanded metal wrapping for plaster finish.

NOTE - For openings exceeding 2'0" in width steel channels are introduced into the thickness of the floor, to support short special-ended floor beams placed crosswise to span the width of the opening.

Information from Siegwart Fireproof Floor Co. Ltd.

INFORMATION SHEET : SIEGWART PRECAST FLOORS No 2.

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

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INFORMATION SHEET

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FLOOR CONSTRUCTION

Type of Product : Siegwart Precast Floors

This is the second of a series of Sheets dealing with the Siegwart system of precast floor construction.

In the first Sheet (No. 266) the general principles of the system were outlined, tables of sizes given for various spans and loads, and the standard beam sections detailed.

This Sheet sets out the common types of steel bearing used with the system, and the two principal methods of trimming the floors for openings.

Bearings :

1. Encased Steelwork.—This is the bearing most commonly used with fireproofed steel construction. The lower part of the steel beam is fully encased and reinforced with longitudinal rods connecting at regular intervals with transverse stirrups which pass right round the lower flange of the steel beam.

The top of the encasure properly levelled to the correct height provides the bearing required for the precast beams.

2. Steel angle bearing not encased.—This bearing, together with the third and fourth types shown, is used where it is not necessary to fireproof the steelwork, the angle bolted or riveted to the web of the beam providing the bearing. The horizontal leg of the angle should be not less than 4 in. wide.

3. Steel joist not encased.—This is the simplest and most economical form of bearing for the precast beams ; it requires, however, greater depth than any of the other types shown.

4. Steel beam, not encased, but with concrete haunching.—This bearing has cast in-situ haunchings bedded on the lower flanges of the steel beam and tied together through the web as shown.

This haunching has the advantage that when used with small steel sections it provides a larger bearing area for the precast beams than the flange of the steel section itself would give.

Concrete Encasures and Haunchings :

All casing or haunching of steelwork to receive precast beams is carried out by the Company to ensure proper co-ordination between preparation and floor erection.

Trimming of Openings :

For openings of width not more than 2 ft., but of any length, trimming is arranged by building-in two special mild steel strap hangers as shown. Short precast beams with square ends towards the opening are then laid, leaving an opening with clean faces on all four sides.

For larger openings, steel channels running parallel to the main precast beams are built in, and these provide a bearing for the short beams which span between them, as shown in the detail.

Design and Construction :

The Company undertakes the design, manufacture and erection of hollow precast concrete floors and roofs on the Siegwart system of construction and all preparatory work, such as concrete casings to steelwork, etc. For further details see Information Sheet No. 266.

Manufacturers : Siegwart Fireproof Floor Co., Ltd.
London : Thanet House, 231 Strand, W.C.2
Telephone : Central 4894
Birmingham : Winchester House, Victoria Square
Telephone : Birmingham Midland 1664
Manchester : Millgate Buildings, 18 Long Millgate
Telephone : Manchester Blackfriars 3033
Glasgow : 121 St. Vincent Street
Telephone : Central 7277
Belfast : c/o Robert Kirk, Ltd., Exchange Street
Telephone : Belfast 24681
Leicester : Enderby
Telephone : Narborough, Leicester 67

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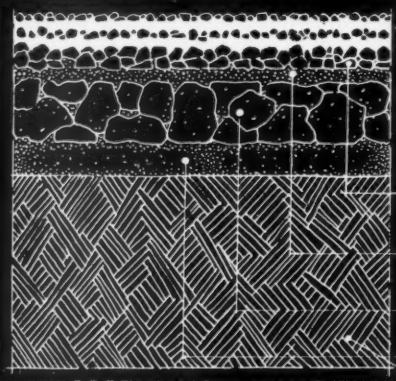
CONSTRUCTION OF DRIVES & PATHS:

1. PREPARATION :

Excavation should be sufficient to allow for any required difference in finished levels of paths or drives and verge or other ground adjoining. Any plant growth remaining after excavation should be removed or weed-killer applied.

2. DRAINAGE :

A Colas path or drive is waterproof so that means of taking away surface water should be provided.



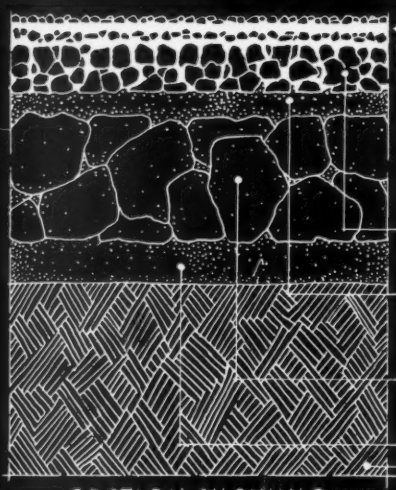
SECTION SHOWING CONSTRUCTION OF PATH :

3. CONSTRUCTION :

Rolling should be carried out at each stage of the work, using a heavy hand or mechanical roller up to 2½ tons weight for paths and a machine of 6 to 8 tons for drives and roads.

The hardcore should be well packed. Sharp bends & corners need banking to withstand extra strain of fast moving traffic.

The second coat of Colas should be applied not less than two or three days after the first coat. Each coat should be covered evenly with shingle or stone chippings, the roller following up closely. The colour of the finished surface is determined by the gravel or stone chippings used for covering the final application of Colas.



SECTION SHOWING CONSTRUCTION OF DRIVE:

ALTERNATIVE CONSTRUCTION:

In certain circumstances the excavated soil mixed with Terolas provides a satisfactory surface for footpaths.

The quantity of Terolas required is approximately ½ gallon per cubic foot. If the soil is of a gravel nature it may be used as it is, but fine soil needs the addition of ⅜" chippings. The proportions are two parts soil and one part chippings. Small ashes and chalk are also suitable for mixing with Terolas, but clay should be avoided.

If the subsoil is soft a light foundation of clinker should be provided.

SECTN SHOWING CONSTRUCTION OF FACTORY ROAD :

Information from Colas Products Limited.

INFORMATION SHEET : THE SURFACING OF PATHS, DRIVES & ROADS

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

Supplement to THE ARCHITECTS' JOURNAL for December 5, 1935

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ROAD SURFACING

Products :

Colas
Terolas
Colasmix
Colascure
Colprovia
Colas Fine Toppings
Alphastic (Hot Binder)

Colas is an emulsion of pure asphaltic bitumen which is applied in a cold state.

This Sheet sets out the type of foundation and surfacing recommended for three different purposes : footpaths, drives and roads. Colas or modified forms of bitumen emulsion produced by the company are equally effective for the repair and resurfacing of existing drives and paths.

Specifications :

Copies of standard specifications of roadwork or paving for each of the following purposes may be obtained from the company on application.

Repair of potholes and other irregularities in gravel, tar or bitumen sprayed and tar-macadam surfaces.

General resurfacing of paths and drives.

Treatment of ash and clinker surfaces.

Preservation of wood paving.

Curing and dressing of concrete.

Manufacture and laying of asphalt carpets and bituminous macadams.

Types of surfacing for playgrounds, aerodrome landing grounds, etc.

Surfacing of sett paving.

Contracts and Service :

The company will supply Colas and other materials to contractors carrying out road work, and in addition the company or its agent, if required, will estimate for the whole of the work, including all labour and materials.

The company are prepared at any time to inspect and report on any road problems submitted to them.

Manufacturers : Colas Products, Ltd.

Address : Norman House, 105–109, Strand, London, W.C.2