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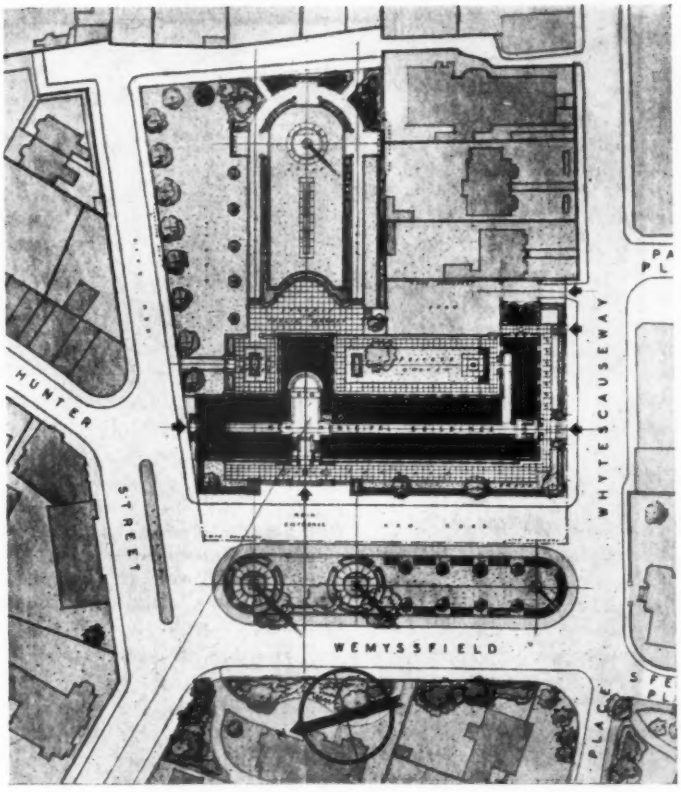
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, NOVEMBER 4, 1937. NUMBER 2233 : VOLUME 86

PRINCIPAL CONTENTS

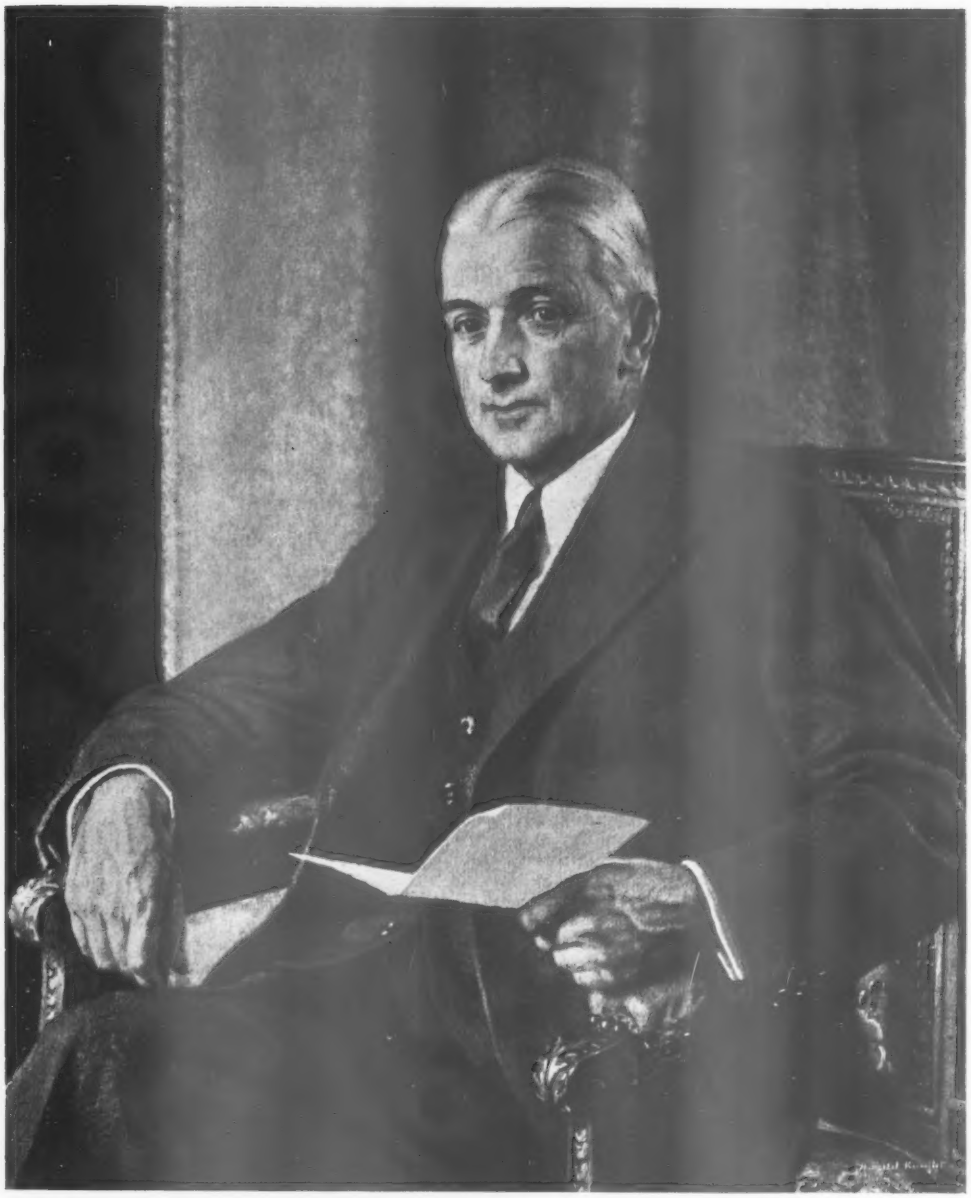
COMPETITION FOR MUNICIPAL OFFICES, KIRKCALDY

DESIGN PLACED FIRST: BY DAVID CARR



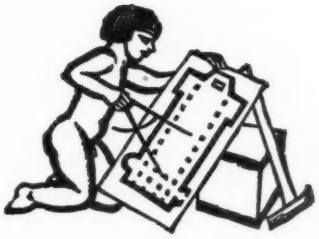
AS announced in last week's issue, Mr. T. S. Tait, F.R.I.B.A., the assessor of the competition (limited to architects practising in Scotland) for municipal offices at Kirkcaldy, awarded the first premium (£200) to Mr. David Carr, A.R.I.B.A., of Edinburgh. On this page we reproduce a perspective and site plan of the winning scheme; the floor plans are given on page 695.

The estimated cost of the scheme is £92,780, including £8,000 for the garden layout.



P P. R. I. B. A.

On Monday last, at a general meeting of the R.I.B.A., Mr. H. S. Goodhart-Rendel, President of the Institute, unveiled the portrait of his predecessor in office, Mr. Percy E. Thomas. The portrait, a reproduction of which is shown above, was executed by Mr. Harold Knight.



SCHOOL PLANNING

THE third of the JOURNAL's sections on the planning of special building types begins in this issue. This section, called "Schools," seems particularly to need some explanation.

Writing a work of reference for any profession is a daring undertaking. In architecture the dangers of a too personal attitude of mind, of merely summarizing what has been done and therefore that which is already partially out-dated, or of anticipating developments which do not subsequently take place, are specially large.

In the first planning section in the JOURNAL, that on Town Halls, these mistakes were not difficult to avoid. The design of town halls is so bound up with the competition system that slow developments, and, one hopes, improvements, within the framework of that system was its obvious destiny. The competition system in its turn is based greatly upon the definite opinions of local authorities on what they want in the accommodation and appearance of their municipal buildings. A summary of town hall planning, to be useful at all, was bound to take account of these things.

In "Shops," the second of the sections, the principal subject was the study of different ways of using a huge range of materials and equipment within a small, rigid and nearly always similar space. To be out of date in designing a shop is to forfeit almost the whole purpose of a shop design, to be personal in writing of shop planning is forgivable, to be too far ahead of one's time is not a large fault in considering a design problem which has normally only a life of ten to fifteen years. The dangers to which a technical reference is liable did not therefore apply to "Shops," of which the value, which the JOURNAL believes to be very large, lay in the skill and ingenuity of the examples of design in detail which it illustrated and explained.

SCHOOLS, the section which starts in this issue, is dealing with a far more dangerous problem, and the most difficult aspect of it. It is considering only the buildings of the national education system for children up to fifteen, together with buildings for such extensions of the system as seem probable. By so doing SCHOOLS has become an essay of enormous potential value and extreme liability to criticism.

It sets out to deal with buildings in which cost is more important than in almost all others, which are controlled by laymen of very varying abilities sitting on more than three hundred committees of an extremely complex system. It deals with buildings which had become during sixty years so uniform and uninteresting that they had almost ceased to be considered works of architecture, which have suddenly come to be considered, and rightly considered, of tremendous importance. Nor is this all. Modern educational policy has so changed the needs of schools in layout, accommodation and equipment, that it demands the discarding of almost all previous methods of school planning.

Discarding in favour of what? This is the question that SCHOOLS will try to answer. The Board of Education has issued a booklet* which generally outlines what the new schools need, but buildings expressly designed to provide the proper surroundings for new educational ideas still exist mostly on paper. Whether they will prove ideal in practice has still to be decided.

The new section has been written in the belief that, while final tests in detail are still to be made, it is now possible to describe and to illustrate what is needed in the planning and equipment of our new schools without fear of being wrong on major questions.

With educational ideas developing so quickly, and public opinion at last in favour of better schools, the authors of SCHOOLS have felt that the greatest potential danger in their work of reference was that of illustrating past examples—for in schools most completed buildings are not only probably, they are certainly out of date.

That the authors may be too personal in their views, they are prepared to admit. But the third danger, that of prophesying a form of development which does not subsequently take place, they have done their best to avoid, both by taking expert advice and by illustrating the general trend rather than the exciting exception.

Because of its substantial agreement with the authors of SCHOOLS, the JOURNAL believes its third planning section will be valuable to the world of education as well as to architects.

* *Suggestions for the Planning of Public Elementary Schools.* Board of Education No. 107. H.M.S.O. Price 2s.

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NOTES & TOPICS

FIRST NIGHT

THE only chance a President of the R.I.B.A. has of speaking for himself alone was bound to have notable results from Mr. Goodhart-Rendel.

*

Last Monday the members and guests who managed to get seats or stood along the walls of the lecture room were certain of so much. And a few of them knew also that the President had delayed an operation solely in order not to let the Institute down. But they can hardly have expected the slow, lucid stream of outspokenness that swept over the highly decorated audience.

*

As the President rose and bent over a stand too low for reading in comfort one wondered by what distinction of scholarship or wit he would touch on the big and dry things without either avoiding the vital, or giving a bad time to the R.I.B.A. public relations department. For a President, to the public, is a President.

*

Within the first few seconds Mr. Goodhart-Rendel showed that he didn't agree—that he considered a President's personal views were his own.

*

"I hold that almost the only things worth talking about on an occasion like this are highly controversial and I mean to make the most of my freedom tonight by talking about several of them."

*

And talk he did—in the most memorable Address yet heard at the Institute. It is possible that the President trod on many toes, even on Ministerial toes, but I believe the R.I.B.A.'s prestige rose with every stamp. For if there is one feeling the public now shares with architects it is a nausea at listening to eminent people talking round great questions.

*

The President's Address can be read elsewhere in this issue. In case anyone should think for a second of missing it, I will quote one or two of its paragraphs :—

The party system, by which we are still in reality governed, is in itself no fit topic for an architectural address, but the intrusion of its method and its passions into the field of town-planning and architecture is a danger that I cannot pass without comment. . . . The architect who designs with the intention, not of taking his part in the existing order but of subverting it, is a man who has mistaken his vocation.

*

We have levelled plague-spots in the slums in a way that has obliged their dispossessed inhabitants to spread out in plague rings round the rebuilt quarters they cannot afford to re-enter.

*

I think that the rebuilding of Waterloo Bridge in the position, form and dimensions now agreed upon will probably prove one of the curiosities of history. From the town-planners' point of view it seems to me an entertaining caprice, but a costly one.

*

Good results, however, are often for a time produced by bad systems when the bad systems are worked by good men. In deploring the inordinate increase of departmental architecture I know that I have the support of many friends whose high achievement within such departments has done much to distract public attention from the radical unsoundness of the system itself. It is a system that may tend in the long run to isolate certain kinds of architecture and to cut it off from the stream of progress. . . . I think that the value of the regular employment given in such departments is discounted by the distress caused in our profession whenever a great number of supernumeraries recruited by these departments to meet an emergency, is simultaneously dismissed when the emergency has passed.

*

But, however controversial all this was, Mr. Goodhart-Rendel made it quite plain that his views were his own. And judging by the slightly pained expressions on the platform I imagine that the Council were not too distressed at being left out.

*

Afterwards, Lord Crawford, in criticizing the way the War Office employs its architects, gave a most charming imitation of a Secretary for War answering an awkward question, and Lord Plymouth, determined to give nothing away, amplified this imitation with all his usual facility.

*

The London Architecture Medal award produced some good cross-talk between partners Hall, Easton and Robertson as a fitting wind-up to a meeting that could so easily have ended in anti-climax.

*

All architects will hope that by the time these notes appear Mr. Goodhart-Rendel will be getting ready to "implement his programme."

MR. T. P. BENNETT . .

The rather delightful habit of architects entertaining their colleagues actually on their jobs, by means of a cocktail or tea party, seems to be spreading. It is a habit which has no sting in the tail as do those lavish entertainments given by manufacturers at the conclusion of a tour round their works. To publish and explain one's problems and their solution, rather than to have "trade secrets," is in accordance with the dictates of a profession as opposed to a business. These thoughts come to mind in connection with the very pleasant little entertainment which Mr. T. P. Bennett gave this week, at the premises which he has built for Messrs. John Barnes on the Finchley Road.

*

Stamina is about the most important asset which a modern architect can have. Two existing and one new railway tunnel, town-planning objections, objections from the police and negotiations with neighbours do not seem to have interfered with Mr. Bennett's doing just what he wanted.

On Thursday last, at Pilkington's works at Doncaster, the Mayor of Doncaster "christened" the firm's "Glass Age Exhibition Train." The train, which consists of two L.N.E.R. passenger coaches and which began a tour of the country on Monday, shows 600 varieties of glass. The illustration shows the cocktail bar.

. . . EXPLAINS HIS BUILDING

The building contains some interesting details. Special piling tests had to be made to evolve new methods to deal with peculiar site conditions. Spanning the tunnels meant driving piles into perfectly good ground—a pretty little problem without much precedent. With a Department Store downstairs, access to flats on the upper floors was bound to be limited and a novel scheme of goods delivery was therefore planned. All goods went up to the roof from a single entrance and were then sent down direct to the flats from various points at roof level. This proved a bit too much for the errand boys but is working well with a system of page boys who receive the goods at the main trade entrance.

TRURO

The loud speaker is going in the next room and in those curious cadences which can be heard nowhere else but in the English pulpit I can hear the story of how Pearson came to add those curious spires to that rather pleasant fifteenth-century fragment which now forms the south aisle of Truro. It all happened exactly fifty years ago and it is curious to hear that the population of Cornwall is actually less than it was then.

*

It seems that a cloister is to be added to the pile. The Church has perhaps more right to be conservative than most institutions, but it is difficult to understand why a Protestant cathedral wants a cloister at all. The mediæval cloister was the connecting corridor between the church and the monastic buildings. At the suppression of the monasteries the cloister of many cathedrals was left standing, but to build an expensive corridor leading nowhere is an odd proceeding.

*

It was Sir Giles Gilbert Scott, I think, who said that he attempted at Liverpool to design a cathedral which would make people pray. Pearson said that he wanted to bring them to their knees. Scott, perhaps, used the happier phrase, but the idea was the same.

ROADS FOR LONDON

Sir Charles H. Bressey was appointed three years ago by the Minister of Transport to replan the thoroughfares of Greater London. His final report, outlining an ambitious scheme for 900 square miles, is expected to be in the hands of the Minister by the end of the year. It is designed to cover the needs of the next 30 years. Underground roads would run east to west and north to south below the level of the existing underground railways.

*

Thinking on a large scale is always welcome. One claim put forward for Sir Charles's scheme is that his roads would be invulnerable in war-time. Unless some method of ventilation other than that used for the Mersey tunnel can be arrived at, the intake or extract towers might still seem to remain good targets.

*

"Appearance" has not been neglected, and in his survey Sir Charles has had the co-operation and advice of Sir Edwin Lutyens, R.A.

GLOUCESTERSHIRE

Gloucestershire, as I have hinted before, is the scene of great War Office activity just now in the way of the construction of aerodromes, bombing ranges, arms factories. A landowner there recently received a visit from a War Office official who wished to open negotiations for the acquisition of a piece of land for one of these sinister purposes.

*

This official produced a map of the district and pointed to a site which he said the War Office had selected for a rifle range. The landowner had to point out that this particular piece of land was not included in his property but, as a matter of fact, happened to belong to the National Trust.

*

The official apologized and left. I don't know which moral is most important: that the War Office would save everyone a lot of trouble by consulting someone with knowledge of local land utilization; or that it is a most unhappy coincidence that land considered suitable for preservation by the nation always seems to be also the most suitable for bombing by the War Office.

THIS MAN DESERVES A JOB

A correspondent writes: "Talking of assistants' advertisements I have wondered that Astragal has not spotted and commented on this advertisement which has appeared in the JOURNAL for the last two or three weeks. I should have thought it would have appealed to him.—Yours sincerely, "NOT THE ADVERTISER."

The advertisement runs as follows: "Lazy, unpunctual, and generally incompetent Assistant, with five years' experience, would accept position with modern architect. Modernists only need apply. Box 110."

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

THE ARCHITECTS' DIARY

Thursday, November 4

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Annual Exhibition of Water-colour drawings and other etchings by members. Until November 16.*

Friday, November 5

INSTITUTION OF STRUCTURAL ENGINEERS. *Scottish Branch. At the Central Hotel, Glasgow. Annual Dinner.*

Saturday, November 6

COUNCIL FOR THE PRESERVATION OF RURAL ENGLAND. *At the Graves Art Gallery, Surrey Street, Sheffield. "Save the Countryside" Exhibition. To be opened by Sir William Rothenstein. 3 p.m.*

Monday, November 8

CHARTERED SURVEYORS' ASSOCIATION, 12 *Great George Street, S.W.1. Inaugural address, by Robert Cobb. 6.30 p.m.*

Tuesday, November 9

UNIVERSITY EXTENSION LECTURES. *At 66 Portland Place, W.1. Sixth of the series of lectures: "Architecture—Its Place in Human Society." By Basil Ward. 6.30 p.m. (Admission 1s. 6d.)*

BUILDING AND ALLIED TRADES GOLFING ASSOCIATION. *Annual Dinner. At Grosvenor House, W.1.*

Wednesday, November 10

BUILDERS' BENEVOLENT INSTITUTION. *Annual Dinner. At the Connaught Rooms, W.C. 7 p.m.*

KING GEORGE MEMORIAL STATUE

The King George V Memorial Statue, to be erected on a site in Abingdon Street, Westminster, will show him standing in naval uniform and wearing Garter Robes. The statue, in bronze, will stand 10 ft. high.

The statue is to be carried out to the design of Sir William Reid Dick, R.A., while the memorial is being designed by Sir Giles Gilbert Scott, R.A.

LONDON COUNTY COUNCIL

At last Tuesday's meeting of the L.C.C. it was announced that during the summer recess the Housing and Public Health Committee entered into arrangements for the construction of 840 flats in various parts of London, mainly in Hackney and Wandsworth. The cost of building these flats, which will provide accommodation for over 4,000 persons, is estimated at £490,000.

ARCHITECTS' REGISTRATION BILL

In the House of Commons on Friday last it was announced that the Architects' Registration Bill is to be presented for second reading on Friday, December 17. The object of the Bill is to restrict the use of the name architect to registered architects and to extend the time within which practising architects may apply for registration. The Bill was drawn fifth in the ballot for Private Members' Bills.

£7,500,000 SCHEME

Mr. Hore-Belisha, Secretary for War, speaking at Devonport last week, announced that the Government had decided to spend £7,500,000 on modernizing barracks.

HAMMERSMITH TOWN HALL

A site between the River Thames and King Street, Hammersmith, has been set aside for the new Hammersmith Town Hall by the Borough Council. On Wednesday of last week the Council accepted the tender of Messrs. Allen Fairhead and Sons for the erection of the building at a cost of £219,541. The architect is Mr. E. Berry Webber.

A.A.S.T.A. COMPETITION

Details of the A.A.S.T.A. competition for an essay entitled "The Future and the Architectural Assistant" have just been issued. The competition is being promoted by the Association with a view to obtaining a consensus of opinion of architectural assistants on their future. The assessors are Professor C. H. Reilly, O.B.E., F.R.I.B.A., Mr. H. de C. Hastings (Editor of *The Architects' Journal*) and Mr. F. J. Maynard, A.R.I.B.A., President of the A.A.S.T.A.; and the following premiums are offered: £20, £10 and £5. Following are some extracts from the conditions: "The competition is open to any assistant, junior or senior, employed in an architectural office or department, or to any student (not practising as an architect) taking a course of architectural training. Essays should not exceed 2,500 words in length, should be written, or preferably typed, on one side of the paper only, and must reach the Secretary, A.A.S.T.A., 113 High Holborn, London, W.C.1, endorsed on the envelope 'Essay Competition,' not later than the first post on Wednesday, January 5, 1938. Each entrant must adopt a pseudonym which should be typed or written on the last page of the essay. His name and address should also be enclosed in a smaller sealed envelope having his pseudonym only clearly typed on the outside."

BUILDING INDUSTRIES NATIONAL COUNCIL

The half-yearly meeting of the Building Industries National Council was held at the R.I.B.A. on Thursday last. Mr. John M. Theobald, P.P.S.I., President, occupied the chair.

The President, in his statement to the meeting, stressed the increasing scope and importance of the matters dealt with by the Council. He referred, in particular, to the formation of the "Materials Group" which, under the chairmanship of Mr. H. J. C. Johnston, Senior Vice-President of the Council, at the moment comprised, Ballast, Sand and Allied Trades Association, British Constructional Steelwork Association, British Metal Window Manufacturers' Association, Limited, Builders' and Plumbers' Merchants Association, Cement Makers' Federation, Imperial Chemical Industries, Limited, Lead Industries Development Council, National Federation of Clay Industries, National Gas Council of Great Britain and Ireland, Plate and Sheet Glass Manufacturers' Association, Timber Trade Federation of the United Kingdom.

Membership of the group, he said, was open to every similarly representative body, and the group provided a means whereby members could come together to discuss any subject of common concern and take part in the consideration of the many problems which were common to their interests and to the interests of the industry as a whole.

The appointment of a Committee on Research and Information, under the chairmanship of Lt.-Col. C. W. D. Rowe, M.B.E., Vice-President of the Council, was, he said, a step in the consideration of matters coming within an important field of enquiry.

The line of development which the Council was following was in harmony with the recent statement of the Prime Minister at Manchester, when he said:—

There was a great growth of voluntary organization in industry, because it was recognized that, as contact with governments became closer, it was convenient, and almost necessary, to set up in each industry some central organizing or governing body which could on behalf of the industry watch what the Government was doing, collaborate with it, or, if it thought it necessary, resist Government encroachments upon its interests. And all this facilitated a closer examination of the layout of industry, which in turn resulted in a considerable amount of reorganization involving lower costs and general stabilization of conditions.

The President said in this connection that it was encouraging to the Council that it had received the assurance of the Prime Minister that certain proposals put forward by the Council, relating to the long term interests of the building industry, were receiving full consideration.

CHANGE OF ADDRESS

Mr. A. Underhill, A.R.I.B.A., has moved to No. 54 Whitmore Gardens, N.W.10, where he will be pleased to receive manufacturers' catalogues, etc.

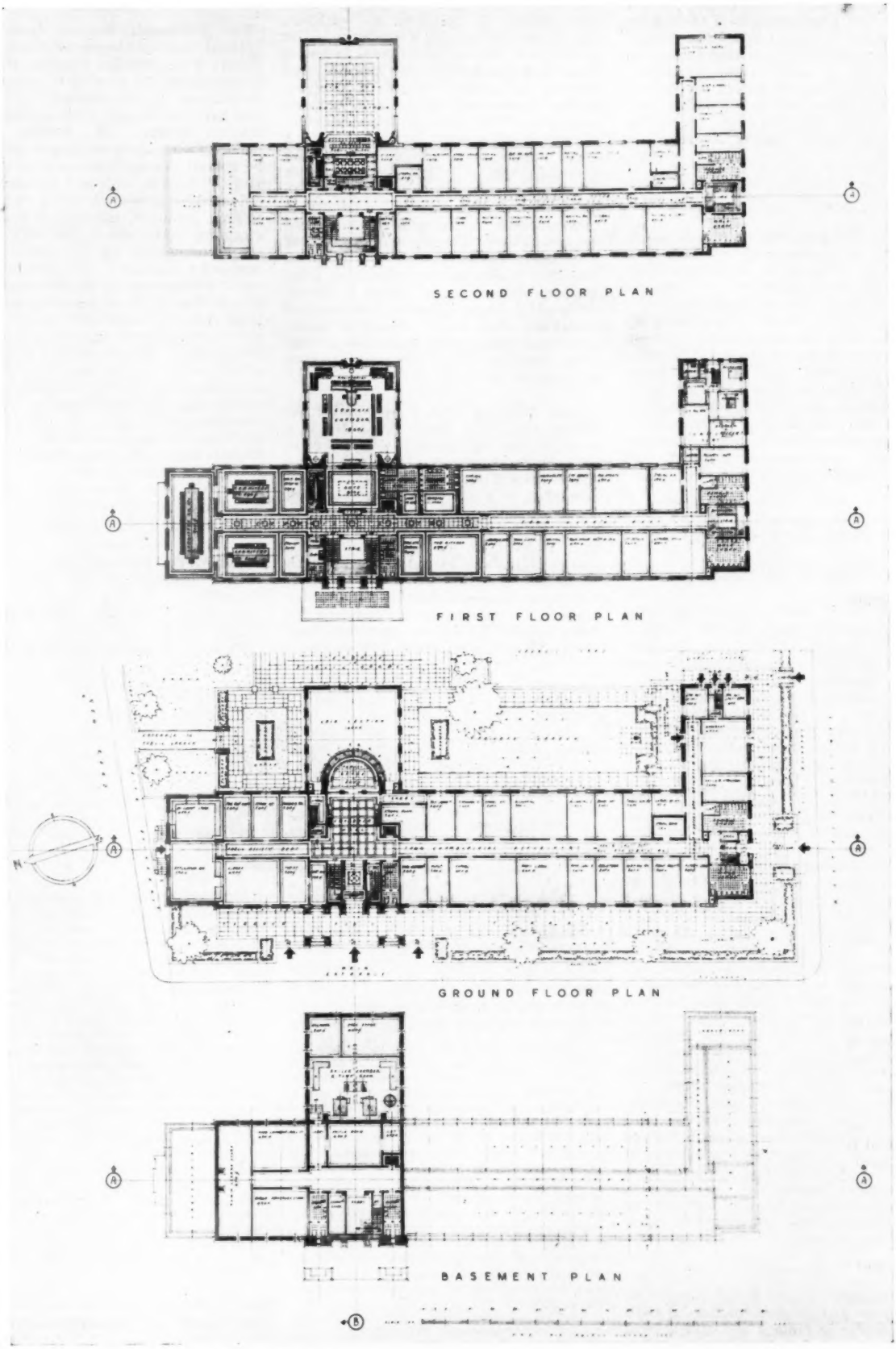
HOUSING PROGRESS IN SCOTLAND

The number of houses completed each month by Scottish Local Authorities has been gradually increasing since last June, and in September was 1,215, the highest figure for any month this year. In the first three quarters of this year 9,258 houses have been completed compared with 11,697 in the same period of 1936. The number of houses under construction at the end of the month has again increased, and was 26,907 compared with 26,759 at the end of August. The number of houses contracted for but not begun has, however, dropped by 301 from 11,636 at the end of August to 11,335 at the end of September. This decrease is in sympathy with the reduced number of houses for which the Department approved tenders in September —1,081 as against 1,868 in August.

The total number of working-class houses

[*Continued on page 696.*

COMPETITION FOR MUNICIPAL OFFICES, KIRKCALDY



DESIGN PLACED FIRST BY DAVID CARR

Plans of the winning design in the competition (limited to architects practising in Scotland) for municipal offices, Kirkcaldy. Perspective and site plan are reproduced on page 689.

completed by Scottish local authorities since 1919 is 185,094.

During September Scottish Local Authorities, in their administration of the Housing Acts, caused 656 unfit houses to be vacated, and 3,117 persons to be displaced from such houses. In the same period 968 families living in overcrowded but fit houses were removed to larger houses, 794 of which were owned by local authorities. In the last 18 months 12,072 families have been decrowded.

PRIVATE TO DEPUTY DIRECTOR-GENERAL

Colonel Sir John Brown, K.C.B., D.S.O., F.R.I.B.A., of Northampton, who joined the Territorial Army as a private, is to be Deputy Director-General of the Territorial Army, with the rank of Major-General.

Colonel Sir John Brown is 57 years of age and joined the Territorial Army 37 years ago, and is a Fellow of the R.I.B.A. and a J.P. In partnership with Mr. A. E. Henson he has designed many factory buildings in Northampton and district including the Berlei Factory at Slough. Other works of the firm include Friern Barnet Municipal Buildings, Northampton Hospital and various housing schemes.

EXHIBITIONS

[*By D. COSENS*]

PROBABLY few people owe their popularity so much to persecution as does Mr. Epstein. Singled out, for some obscure reason, for repeated attack, his work or any mention of it invariably "news," he is without doubt the best-known sculptor in England; in fact, to the great British public the only modern sculptor. Why he has been chosen from among so many applicants for this enviable position it is hard to say, and it is equally hard to define the quality in his work that shocks our national susceptibilities so much more than, say, the work of Henry Moore, which is equally misunderstood. He continues to hold this position not for his magnificent portrait bronzes, but for what might be called his more experimental work, of which his large carving, "Consummatum Est," at the Leicester Galleries is the latest example. This figure of Christ fails as sculpture, but its sincerity is obvious, and one feels that it is here, in these massive carvings that appear from time to time, that the real Epstein lives; that his constant and not always completely successful experiment with an impersonal statement of emotion is of more real interest to him as an artist than his other work. Such early carvings as his "Doves" were completely successful, but generally speaking it is Epstein's portrait bronzes which bring him into the front rank of English sculptors. At his present exhibition these are of his usual high standard, intense and well composed, and they emphasize his superiority in the expression of plastic values in modelling rather than in stone.

The exhibitions of the Royal Institute of Oil Painters and the New English Art Club are so similar in outlook and achievement that they may well be considered together—in fact, there seems little reason why any particular painting should be in one collection rather than the other. Both exhibitions may be taken as an index to the kind of painting the average Englishman appreciates. It produces no surprises, and no adventure, and is exactly suited to preside with modest cheerfulness in homes devoted to the bridge table and the tired business man, and to give a satisfying feeling of restrained culture to its ultimate possessors. The level of technical competence is high, often far higher than is found in much more interesting work. And sometimes the artist has forgotten, with great success, that it is his duty always to be chatty and pleasant, and has painted to please himself. In this small category, and out of well over eight hundred pictures, are paintings by Nadia Benois, Charles Ginner, Ethelbert White, Rowland Suddaby, Ethel Walker, Adrian Allinson, Harold Workman, Adrian Hill, Lucien Pissarro, and Winifred Nicholson. This small minority of paintings, even though it is generally speaking by no means the artists' best work, serves as an antidote to despair.

Every architect who is responsible for interior decoration knows how hard it is to find furnishing materials that will fit in with the contemporary idiom in building, and which will not be as dated as the worst Edwardian in a few years time. For most of the attempts made by manufacturers to bring textiles into line with architecture have resulted in the glut of geometric horrors of the hotel lounge type with which we are all only too familiar. The only difference between yesterday and today has been that the naturalistic floral entanglements beloved by the last generation have given way to a more recent preference for abstraction, and chevrons and stripes now chase each other dizzily round the room.

The Edinburgh Weavers have always realized that technical perfection in manufacture is not enough, and now they have re-considered the question of textile design in relation to contemporary architecture, and have had designs made by well-known abstract artists. Mr. Alastair Morton defined their aims in the speech with which he opened the exhibition, and in which he said: "Anyone with any knowledge and appreciation of what is going on in architecture, literature, painting or music, will recognize that there is the same guiding spirit throughout all the forms of contemporary culture. In architecture it might be expressed as the dialectical interplay of free functional planning on the one hand, with the architect's æsthetic sense of the beauty of shapes and spaces and colours on the other. The significance of the group of fabrics we are now showing is that they are designed by a group of artists whose field is this same rhythmic beauty of pur shape and space and colour." The designs, which are extremely good, are by Ben Nicholson, Barbara Hepworth, Arthur Jackson, Ashley Havinden, Eileen Holding and Winifred Dacre. It is to be hoped that the Edinburgh Weavers will receive enough encouragement to extend their range.

Epstein. The Leicester Galleries.

Royal Institute of Oil Painters. 195 Piccadilly.

New English Art Club. Suffolk Galleries, Suffolk Street.

Edinburgh Weavers. 55 New Bond Street.

R.I.B.A.

INAUGURAL ADDRESS

On Monday last Mr. H. S. Goodhart-Rendel, President of the R.I.B.A., delivered his inaugural address, which is printed on this and the pages following. The vote of thanks was proposed and seconded by Lord Crawford and Lord Plymouth respectively.

I hold that almost the only subjects worth talking about on an occasion like this are those that are controversial, and I mean to make the most of my freedom tonight by tackling several of them. I shall put first in my address, however, one subject about which there cannot be any controversy at all. This is the excellence of our late President. The great affection with which we all of us regard him is much; his good-heartedness, his charm, his tact, have ensured that inevitably. But how could we demand that a man with such lovable qualities should also prove, as he has proved, so strong a leader, so skilful a diplomat and so unselfish a slave to all the obligations of our routine? He has put the Institute enormously in his debt and his successors at an embarrassing disadvantage.

The Question of Registration

Another subject that everyone here would wish to be removed from the controversial class unhappily appears still to remain within it. It is still possible, in England, for a man to call himself professionally an architect without any qualifications parallel to those he must have if he call himself professionally a doctor or a solicitor. Now, if the profession of architecture were solely that of producing art there would be no anomaly in letting the public find out by experience whether a man were an architect or not, just as it finds out—more or less—whether or not a man is a painter or a poet or a musician. But the profession of architecture consists also in taking fees for work the efficiency of which often cannot be immediately tested, for putting up buildings which can become as dangerous to health as an inept medical prescription, which can prove as disastrous financially as ignorant legal advice. As things stand, a man incapable of putting up any building that was not sanitarily or commercially unsound could still take an office and put the word "architect" on his door and notepaper. If the door were handsome and the notepaper expensive a certain number of unwary people would probably employ him, although after he had caused a few deaths and bankruptcies, his practice, no doubt, might dwindle.

To insist upon the public buying prudence at this price is unpleasantly reminiscent of our now regretted policy of letting people get killed by the thousand upon dangerously planned roads until they should learn to demand roads planned for safety. We do not require people to learn by experience whether a doctor knows the

difference between camphor and cyanide of potassium, and it is hard to see why they must learn by experience whether the man behind the architect's doorplate can or cannot house them safely and protect their financial interests. Absolute security no legislation can ensure for them, but there seems no excuse for withholding the relative security in architectural matters that in medical and legal matters they already enjoy.

I have said with regret that about this subject there is still some public controversy, and I feel that this can only be due to a misunderstanding of the matter involved. At the present time no new entrants into the profession can call themselves "registered architects" without having given proof of their qualifications. As any established impostors died out the word "registered" might no doubt become generally recognized as a valid guarantee, just as, if the word "solicitor" had been thrown open to anyone who cared to assume it the term "registered solicitor" could have been recognized and protected. Nevertheless, why what nobody has thought convenient in one case should be defended as desirable in the other is a thing I find impossible to understand.

Planning

The allusion I made just now to what is so curiously called the "toll of the roads" suggests another subject not uncontroversial. The practice of town and country planning nowadays has lip service from all, but an inward revolt against it is apparent in the many obstacles that are allowed to stand in its way. I find this revolt unjustifiable but easy to understand. It is natural for small local authorities, for individual property-owners, to be jealous of their independence and no one would wish to deprive them of any more of it than needs to be relinquished for the common weal. It is natural to admire the unplanned picturesqueness of narrow congested streets, of piquant contrasts of stately buildings with squalid, of vague country highways that seem to go nowhere with certainty except to a road accident. In exchange for these things the town-planner offers a bureaucratic control of a kind that may easily become soulless and a formal beauty in which picturesqueness is unlikely to play a very large part. But he offers also safety, health—and wealth of the kind it is laudable to strive for; the national prosperity that springs from a wise and economical use of national resources. Your narrow streets starve the dwellers in them of sunlight, their congestion wastes precious time. Your stately buildings are inconvenient of access, your squalid buildings have few charms for their occupants. Your historic high roads continue to extort their bloody human sacrifice.

Rebuilding of London

How hard it is to believe that the vast re-building of London now in progress should still be controlled by no systematic plan! How hard to realize that the lesson of the past is still unlearnt, that the confusion Sir Christopher Wren's plan for the city might have averted, the success of Baron Haussmann's replanning of Paris, should not have taught us the wisdom of forethought. Our system, as far as we have one at all, seems to be that of curing an evil that has become unbearable in such a way as to produce other evils that probably will be bearable until the present generation shall have passed away. We have levelled plague-spots in the slums in a way that has obliged their dispossessed inhabitants to spread out in plague rings round the rebuilt quarters they cannot afford to re-enter. We have cut new streets from somewhere to nowhere in particular and made a great improvement in the flow of traffic until enough classes of traffic have learnt to use the streets and jam in new places. We have allowed railways to block countless useful through streets and convert them into degraded culs-de-sac. We have built large new bridges without providing any adequate means of approach to them.

I have worded this indictment in the past tense more from politeness than from conviction. I can think of one highly important new street out of London that is now being formed on principles little better than those that have given us Shaftesbury Avenue, of one new bridge that is to provide for a large body of traffic whose method of getting on and off it has never been explained, and of one bridge pronounced necessary by all expert opinion the mere mention of which still causes many responsible persons feverishly to change the subject.

I am told, I do not know if truly, that to expose the plan of a new street to public criticism is to invite speculators to buy up property with which they can hold it up, and that for this reason the public often cannot expect to get news of such undertakings until their execution has been arranged for. Should such secrecy be necessary, the projects that it shields from criticism ought to be as nearly above criticism as skill and forethought can make them. I cannot believe that the sponsors of the design for the new road through West Kensington would claim this for it.

The Bridges

I think that the rebuilding of Waterloo Bridge in the position, form and dimensions now agreed upon will probably prove one of the curiosities of history. From the town-planners' point of view it seems to me an entertaining caprice, but a costly one.

The problem of Charing Cross Bridge, as everybody knows, is a problem not of a bridge but of its approaches. When some years ago various proposals were hotly discussed, a great many foreign considerations were dragged into the argument—for the moving of the railway and the re-establishment of the railway terminus really have no essential bearing upon the imperative need of a road bridge at this point on the river. The subject would very probably have been the better for having had a rest if the unnecessary works at Waterloo had not wasted money in the interval; and it appears that at the present time it may be reopened dispassionately and with good promise of a satisfactory issue.

Even if the new street and the two new bridges —if all new streets and all new bridges were as perfect as man's wit could make them—their perfection might be of little avail while they remained parts of no comprehensive design for the London of the future. All of us who know anything of the difficulties experienced at the County Hall by those concerned with the nineteen town-planning schemes already seething in that cauldron can have nothing but admiration for the courage and tenacity there displayed. But the difficulties inherent in piecemeal legislation are insuperable and sooner or later must be arbitrarily removed. Would not sooner be better than later? Of course, a comprehensive design for London could not be inflexible, but every part of it should be so well based upon experience and sound theory that only very good reasons could justify its alteration. It would obviously be wise to avoid in it all features conditional upon social changes the probability or desirability of which can be disputed, seeing that a plan of the kind can succeed only if it has behind it general, and not partial, enthusiasms. Human nature being what it is, if you make the simplest good the aim of a party, you immediately lead a large number of good men to fight, quite unconsciously, for the bad.

Politics in Architecture

The party system, by which we are still in reality governed, is in itself no fit topic for an architectural address, but the intrusion of its method and its passions into the field of town-planning and architecture is a danger that I cannot pass without comment. Town-planners and architects are primarily men who get things done, not men who dispute what the things done shall be. They are comparable not with the political chiefs of Government departments but with the permanent officials of those departments, who get on with the work while their chiefs are forced to pick out little vote-catching bits of that work and brandish them round the country. It may be that this charging of normal activities with political significance is necessary in order that the normal activities may go on: a not very far-seeing public might conceivably fail to support a department that was withdrawn from all the excitement of conflicting social programmes. Such conflict, however, hampers steady work far more than it stimulates and, before it is too late, should be resolutely excluded from town-planning and architecture. The architect who designs with the intention, not of taking his part in the existing order but of subverting it, is a man who has mistaken his vocation.

Sociology is a field in which the architect's advice will often be invaluable, but I think it unwise for him to give it unsought. Sociology is too big a subject to be anybody's side-line and if the architect lays down the law about it there is—shall I say?—just a tiny little risk that he may make a fool of himself and a very big risk that he may disgust those he is hoping to instruct. On the other hand, when the architect has a reason to think that his services are being enlisted in the evasion, rather than the solution, of a sociological problem it may be well in his province not to keep that reason to himself. Indeed, he is entitled in self-defence to disclaim responsibility for the programme he has been called upon to fulfil.

Housing

In our present housing policy, for example, architects are largely blamed for mistakes that are not of their making. Most of the enormous sum of money spent already upon the housing of the people has been administered by authorities anxious to make a great show of activity, but apparently unconscious of the delicacy of the task they have undertaken. Hardly any sympathetic research has been made officially into the habits and preference of slum-dwellers, whom it almost seems that many politicians and authorities would sooner exterminate than re-house. In consequence, architects, both independent and salaried, have been kept busy paving with good intentions a region having as many circles of varied discomfort as Dante's, but which, it is only fair to say, not many really poor people have yet been made to inhabit. I think if architects had been generally consulted not only as to how to build, but also as to what should be built, their experience in meeting actual needs would have prevented much of this error. They would have discriminated between the circumstances in which block dwellings were inevitable and those in which they were an unnecessary outrage upon the instincts of a privacy-loving and garden-loving people. They would have discriminated between the circumstances in which a skilful reconditioning of existing property was the most humane proceeding and those in which there was nothing for it but to tear the property down and replace it with something different. They would have discriminated between occasions for the close spacing of houses and gardens of minimum area and those on which the sprinkling of fourteen grand cottages to the acre would not spell draughty discomfort and needless housework to their tenants. They might also have built some houses the poor could really afford to live in.

No doubt it can be said that everything undesirable in the housing schemes of today has been advocated at some time by some architect, perhaps by some eminent architect. The point I am trying to make is that architects in general would have known better and that this is a subject upon which architects in general would have been better to consult than a few specialists. Architects in general would not, of course, have been justified had they refused to supply what was demanded of them, but their advice might have prevented the demand from being made. They certainly should not be generally blamed for the results, where those are perceived merely to have replaced one evil with another. Nobody will doubt this who remembers the enthusiastic reception given in this room to Miss Elizabeth Denby's criticisms of recent housing, some of which criticisms may, perhaps, have been exaggerated, but against none of which did any complete defence seem possible. As far as I can remember no private trust for housing improvement came beneath her lash and it may be noted that the architects employed by such private trusts have generally much wider terms of reference than have architects employed by public authorities. The high average of usefulness in the work these trusts

have done may be due to this; it would certainly be likely that it should be.

Official Building

If I were asked what was the besetting sin of English architecture I should answer "inappropriateness." We sometimes design very good buildings indeed, but too often those buildings are the wrong ones for the uses they serve or the places they occupy.

Very soon after the war a spate of new post offices and telephone exchanges began to pour over the country and upon most of them the eye could rest with considerable pleasure. They had the stately mien of small town halls, their walls pierced sparingly with many-paned windows, their ornamental details well studied, their materials carefully chosen. Handsome balconies were provided in case any member of the staff should wish to take the air or to harangue the crowd outside. These buildings were no more costly and no more inconvenient for their purpose than the style of their architecture made necessary, and if not always highly appreciated by those who worked in them, were warmly welcomed by those who only saw them from without. But were they really the right sort of buildings for post offices and telephone exchanges?

The block dwellings, also, of which we have so many—too many—are often agreeable to look at, their frequent unsuitability lying not in external appearance but in provision for the needs of their intended inhabitants. They are the right sort of building for hardly any Englishman who could live in a cottage. Our schools may have been suitable as far as they have gone, but too few have gone so far as to be really good, judged by standards that have been set elsewhere.

Now the bulk of these post offices, telephone exchanges and schools and a good deal of the block housing have been designed not by free-lance architects but by the architectural organizations of public bodies. In these architectural organizations can be found many of the ablest men in our profession and the average merit of work these have produced recently has often been extremely high. Certainly the schools and hospitals built by some of them are in the van of our architectural progress and the days when the term "official architecture" was justifiably used as one of reproach are long past.

Good results, however, are often for a time produced by bad systems when the bad systems are worked by good men. In deploring the inordinate increase of departmental architecture I know that I have the support of many friends whose high achievement within such departments has done much to distract public attention from the radical unsoundness of the system itself. It is a system that may tend in the long run to isolate certain kinds of architecture and to cut it off from the stream of progress. Departments, however well staffed, must always be in danger of becoming like slot-machines in which you pay your penny but cannot take your choice; you expect chocolate and chocolate you will get, of admirable quality but sometimes a little stale.

If all catering were done by means of slot-machines housekeeping would be easy and it is not difficult to understand why the heads of Government bodies and of public departments put more and more work into the hands of their own architectural staffs. It is no good pretending to ourselves that this increase will not continue until public opinion becomes convinced that a system which is not good enough for France or Sweden or America is not good enough for us. If we wish, as we must, to make our public buildings the best in the world we must entrust the design of each one of them not to the senior man in a department or to his chosen deputy, not even to the best man in a department (who will not always be the senior), but to the best man for the purpose in the whole profession. That superlatively suitable man may quite possibly be found in the department, but equally possibly he may not. Departments ought to exist, they ought to be treasuries of hoarded experience, but they ought on all important occasions to put this experience at the disposal of architects especially chosen from among all those within or without whose services are available.

Official Architecture

This subject of official architecture has been a controversial subject in the past and will continue to be one if it be not fully and openly discussed in a way that may remove all misapprehension. My personal view is that nothing can be said in defence of the present practice except that it saves public authorities trouble, that it ensures the utilization of special experience and that it gives regular employment to a number of people that might otherwise have to compete for it in our already crowded market. This defence may seem strong at first sight. I am sure that we all wish to save our public authorities trouble, if doing so does not prove unduly expensive. Special experience is a thing that never should be wasted; and regularity of employment is an advantage that the Institute would naturally like to secure, if it could, for every one of its members.

I think, however, that the easy way for the authorities is much more than duly expensive to the public, primarily in the conventionality of much of the work produced and frequently, I suspect, in its actual costliness in money. I think that the special experience acquired by official departments might constantly be used more profitably in collaboration with fresh minds than by those departments unaided. I think that the value of the regular employment given in such departments is discounted by the distress caused in our profession whenever a great number of supernumeraries, recruited by these departments to meet an emergency, is simultaneously dismissed when the emergency has passed. Not very long ago the Institute sent a deputation to represent this evil to a Minister, I regret to say with little effect.

The best official buildings in France are certainly not less convenient, less economical or less agreeable to look at than ours. But in that bureaucratic country there is no bureaucracy in architectural design, the Government extending a wise patronage to free-lance architects—often surprisingly young—who have distinguished themselves either academically or in their private practice. I am convinced that until our Government does the same it cannot be exonerated from the charge of neglecting the full possibilities of architectural progress.

Among those of our members who are customarily called *salaried architects*, official architects are numerous, but that body also includes the architects regularly employed by non-official corporations, by banks and insurance companies, for example, and by commercial firms. The advisability of such restricted and often restrictive employment is not directly a matter of public concern since no public money is spent in it, although indirectly its tendency to weary our eyes with stereotype might be regarded as publicly undesirable. There is, however, a commercial justification for making a certain kind of building an architectural trade mark and this justification cannot be ignored. Perhaps the most that we can ask, and certainly the most that we are likely to get from this kind of practice, is that a design repeated deliberately over and over again shall be a good design. With the method of that design's production it would be presumptuous to suggest any interference.

Salaried Architects

Other salaried architects are those employed as assistants in offices not their own, but most of these are probably only salaried of necessity and hope to practice independently as soon as they are in a position to do so. Hitherto this Institute has always conceived that the manner of a member's employment, whether he work for a salary or for fees, was a matter personal to himself into which it would be impertinent to enquire. The interests and status of the salaried architect have not been regarded as differing in the smallest degree from those of the independent architect and have, therefore, not been especially safeguarded. Some people think, and are now pressing their view, that these interests have not been safeguarded equally; that the Institute does more for its independent members than for its salaried ones. If this be true the injustice must be removed. On the other hand, the Council must never forget, in this or in any other connection, that the Institute exists to protect the interests, not primarily of architects, but of architecture. It is in the interests of architecture that a code of professional honour should be upheld, and upon this code the Institute insists. It is in the interests primarily of architects that fees should not fall below a certain scale, and this scale the Institute can do no more than strongly recommend. No doubt there are things we might usefully learn from Trade Unions, but there is one fundamental thing that Trade Unions could profitably learn from us. This is to avoid as factious and anti-social any attempt to protect the craftsman by means that have not, as their first objective, to protect the excellence of his craft.

Such matters as those I have brought forward are one of the Institute's primary concerns and the necessity of dealing with such matters is one of its strongest reasons for existence. It must support the efforts of the Architects' Registration Council to protect the public from incompetent practitioners; it must urge the need for foresight in the planning of London and other cities; it must do what it can to make its voice heard in the hubbub of housing enterprise; it must point out and, if possible, avert the dangers of architecture too exclusively departmental; and it must avoid capture by any section of its membership that might be tempted to put partial advantage on the same plane as the advantage of the whole art of architecture. These have seemed to me its most urgent obligations at the moment, and it is upon them, therefore, that I have given my views, believing that a President's inaugural address should be rather a programme than a survey.

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NEWS BULLETIN

Lectures on Architecture: A New Organization.—The R.I.B.A. Council has just approved a comprehensive scheme for the organization of public lectures on architecture. For some time past the Public Relations Committee has been studying the problem of educating the public—both old and young—in architecture, and a comprehensive report by it is the basis of this new scheme. A Lectures Sub-Committee is to be appointed to manage the scheme, which will be somewhat similar to the organization operated by the Exhibition Sub-Committee. The committee has very comprehensive terms of reference, which include the establishment of a panel of lecturers, exploration of the field for lectures, the making of contacts with organizations willing to hold lectures, etc. An important feature is collaboration with the allied societies. The scheme is not intended to supersede the existing efforts of lecturers, either those who lecture for fees or voluntarily, but to co-ordinate and greatly extend their work. Examination of the field for lectures has shown it to be far larger than is generally imagined, particularly among adult organizations. Further details will be published as soon as the lectures sub-committee is appointed.

R.I.B.A. Music Group.—On Sunday next, November 7, at 8.30 p.m., Dr. Malcolm Sargent is to take the chair at the R.I.B.A. when the Opera Circle will hold a meeting. A talk and concert will be given on "Comic Opera in Beethoven's Time." Guests' tickets, which must be purchased beforehand, are obtainable from Mrs. Lanchester, 19 Bedford Square, W.C.1, price 5s. each.

R.I.B.A. Exhibitions.—"Airports and Airways" is to open at Coventry on November 8, where it will be under the auspices of the Coventry City Guild. "Modern Schools" is at the Mortimer Art Gallery, Carr Lane, Hull. "Civic Centres" is at Kidderminster Museum and Art Gallery.

R.I.B.A. Prizes and Examinations.—Tuesday, November 30 (noon) is the last day for sending in entries for the majority of the R.I.B.A. prizes, including the Alfred Bossom Travelling Studentship, the Grissell Gold Medal, the Measured Drawings Prize, the Hunt Bursary, the Neale Bursary and the Arthur Cates Prize. The R.I.B.A. Intermediate Examination will be held from Friday, November 12, to Thursday, November 18, inclusive.

The series entitled
Working Details
will be continued during publication of Schools, but two details will be published each fortnight (beginning November 11) instead of one each week.

SCHOOLS

FOREWORD

BY THE EDITOR

ON the following pages begins the third of the series of sections on the planning of particular building types which the JOURNAL *intends to publish from time to time. The first, on Town Halls, was published early last year, and the second, on Shops, ended in March this year.*

The reasons for choosing "Schools" for the subject of the third series will at the present time need little explanation. Better surroundings and a higher standard of equipment for national education are admitted by everyone to be necessary; what is more, the majority of education authorities are now beginning to take advantage of the higher grants offered by the Board of Education for the building of better schools.

The changes in educational policy call for changes in the design of these new schools, yet for the architects concerned there is no architectural reference book which summarizes the policy and illustrates the surroundings, in this country and elsewhere, which have so far been found most suitable.

For these reasons the JOURNAL'S *third planning section will deal with the policies and the surroundings of local elementary education, together with such developments as appear imminent.*

Children in the garden of a Viennese Nursery School. Architect, Professor Franz Schuster.

The playgrounds and w.c. block of a London elementary school. Photograph by John Burton.

SCHOOLS

The Architects' Journal Library of Planning

Introduction

STEPHEN LEACOCK was not the first man to find something facetious about education. It is an attitude easily caused by the subject's immensity. Faced with the hordes of studies, activities and attitudes of mind that all form part of education, the ordinary person is inclined to wonder whether any one form of preparation for a life full of surprises is likely to be better than any other.

This suspicion of educational theory is specially tempting at a time when ideas on education are in a state of considerable confusion, as they are today. But it is not a helpful attitude for those who have to understand—at least in broad outline—the trends and resulting needs of educational policy during the next ten years. And the number of architects amongst these is likely to grow.

It is intended in this survey to summarize the main trends in educational policy because it is impossible to design a successful school without knowledge of the wider objects of modern education. In fact it is probable that the too general failure of British school buildings has been caused by the transformation of schedules of accommodation into bricks and mortar without real understanding of what is going to happen inside.

In a survey which deals with the surroundings of education and not education itself, this summary must necessarily be short and consequently the dangers of under-statement and over-statement must be risked.

Definition

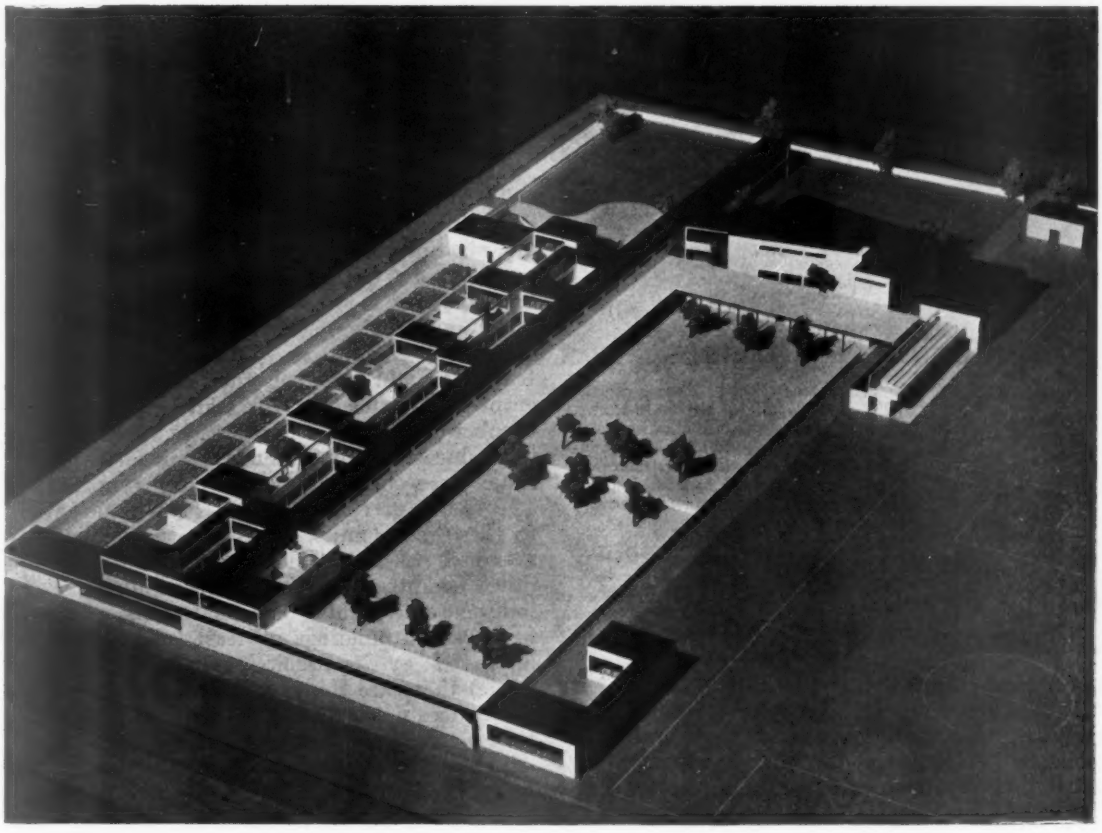
An attempt to study any aspect of education calls for a definition. Here education is taken to mean :

The process by which each child is helped to prepare itself for adult life.

At present, the only thing on which experts in education agree is that some preparation is necessary. The extremes of policy now practised range from unlimited freedom for the child to a complex course of progressive instruction in which almost every hour is covered from the age of two to twenty-two. Somewhere between these lies the preparation which the average citizen thinks every child ought to have.

Educational Systems

At this point a large stride must be taken in considering education. In an ideal world each child might have its educational system designed for it. For the present at least, this is impossible,



Model of the winning scheme in the *News Chronicle* competition for an ideal Senior Mixed Elementary School, 1937. Architect, Denis Clarke Hall. Model made by Kenneth McCutchon.

and the most practical and economical way of supplying education has been to subject all children to one of a few "educational systems," which are devised, administered and occasionally changed by professional experts.

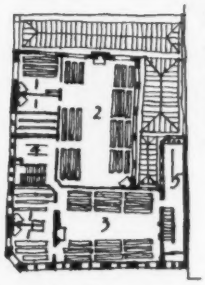
In Britain there are three such systems through one of which all but a negligible number of children pass. These are :

1. *The state-aided system of local education.*
2. *The private, or semi-private, grant-aided day schools.*
3. *The private boarding schools of which the majority are what we call "public schools."*

These educational systems have disadvantages. They tend to become static, keeping to a narrow range of studies because they have always done so and taking little notice of children's individual interests. Nevertheless, educational systems of some kind are permanently essential. Beyond this, what matters to the country at large is :

(*a*) How many children are subjected to each existing system.

(*b*) Whether the largest systems can be improved.



A Manchester Board School of the '70's. An example of the multi-storey, compact type which is the antithesis of the modern idea of good school surroundings. On the sketch plan: 1, classrooms ; 2 and 3, halls with banked seating ; 4, coatroom ; 5, coatroom and lavatory off stair landings.

(*c*) How important to the individual child is what he gets from his particular system.

With these things in mind the number of children undergoing the important existing educational systems can be examined.

Attendance Figures

The latest available figures for school attendance (England and Wales) are :

A : Children at elementary schools ..	5,460,390
B : Children at grant-aided secondary schools and junior technical schools	485,465
C : Children at other schools, including most public schools and preparatory schools	90,723

*** Children undergoing the second main educational system mentioned earlier, that of "Private Day Schools," are partly included under "B" above and partly under "C."

A distinguished writer has tersely covered a huge factor in education by saying in *Who's Who* that he educated himself during holidays from Eton. If a child has sufficiently good opportunities for mental and physical development in his home surroundings what he gets from his formal education will not matter very much. But the converse is equally true; and all but a trivial number of elementary school children have no opportunity for cultural and physical development outside those provided by their school.

It is for these reasons that this survey will be confined to the local system of elementary education through which 19 out of 20 children pass between the ages of 5 and 16, together with such extensions of the system as appear imminent.

Two facts, in addition to the present large programme of school building, support the belief that the planning of elementary schools demands serious study. The last general survey of school planning and design was first published in 1912, the plans included in it being still used today with little alteration. Secondly, educational experts appear generally agreed that schools really suitable for modern education exist at present in Britain only to the number of half a dozen.

The Local Education System

The national system of local education is a confusing study for outsiders. Like other huge organizations it contains both progressive and unprogressive elements. It is not a uniform and national, but a local system. County Councils and County Boroughs have each their own education committees, officials, schools and teachers, and control the whole range of grant-aided education. In addition, a very large number of smaller authorities administer elementary education only, secondary education in the same area being under a larger authority. The Board of Education does not issue orders to these many units, but is able to control their activities to a considerable extent by laying down conditions on which it will make its indispensable grants. The Board makes suggestions, and in buildings at least (which must be approved by its architects before a grant is made) there are things which it will not allow; but it does not lay down rules for curricula. So that on the whole the quality and surroundings of State education are a local, even an individual, affair.

The advantage of this system is that able Committees or Directors are not bound into a tight national service and can progress rapidly if they wish. Its disadvantage is that education authorities need do nothing for years as long as they are not flagrantly worse than the average.

In practice changes have been slow; but educational theory has almost entirely changed in 15 years. And since the architectural problem is that of making surroundings to suit the policy, a summary of the important changes is needed.

DIVISIONS OF STATE EDUCATION

1: PRIMARY EDUCATION

NURSERY SCHOOLS

(Age: up to 5 years)

Compulsory education begins at 5 and finishes (at present) at 14. Permissive legislation, however, allows Local Education Authorities to build Nursery Schools for the pre-school child. Such children may also attend normal Infant schools, to some of which are attached special Nursery Classes.

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INFANT SCHOOLS

(Age: 5 to 7 plus)

At the age of 5, all children must begin nine years of elementary education. Attendance officers are responsible for seeing the law is obeyed, either by attendance at state schools or by the provision of instruction in private schools or at home. In the latter case, however, instruction by parents is not considered as an adequate substitute for a state or private school.

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JUNIOR SCHOOLS

(Age: 7 plus to 11 plus)

The Hadow Report, published in 1926, recommended that the schools should be so reorganized as to allow of separate Junior and Senior Schools, with a break at the age of eleven. Where such reorganization has not taken place, children proceed from the Infant school to a separate Junior school. Where reorganization has not taken place, they proceed to a Junior Department of an all-department Elementary school.

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2: POST-PRIMARY EDUCATION

(Age: 11 plus)

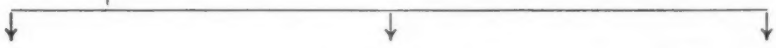
Before the publication of the Hadow Report only the academically inclined pupil received any special form of post-primary instruction since promotion was based on attainment restricted almost exclusively to the three "R's". This Report, however, recommended that *all* children on reaching the age of eleven should automatically proceed to some form or another of post-primary education, irrespective of backwardness in normal school subjects. These proposals necessitate considerable reorganization of existing school buildings and staffing arrangements, and certain Local Education Authorities have not yet put the suggestions into operation.

Changes in Policy

Local education is dependent upon grants from the National Exchequer. Up to 1900 Members of the House of Commons who, in the first instance controlled those grants, and whose children did not attend elementary schools, considered that in providing poorer children with a smattering of the "three R's" they were doing them proud. (It is only fair to say that children at more expensive schools were little better off; but *they* could recuperate in the holidays.)

With 1900 the golden age of unconcern ended. Recruiting figures for the Boer War showed that two out of five candidates could not pass a low physical test and the School Medical Service came into existence. School medical officers were able to see that sick children were attended to at an earlier stage; but they could not remedy conditions in which poor mental and physical development were almost certain. And these conditions of gloomy overcrowding in bad classrooms and short romps in macadamized backyards continued to be almost universal until 1914 and are still very prevalent.

The "General Post" of 1914–18, in which half the younger male population were moved from jobs they knew to those they knew least, caused the beginning of large changes in educational policy. It was found, as in other countries, that the general level of intelligence was horrifyingly low, and early in the 'twenties the State educational system was carefully re-examined. Reorganization in conformance with the principal recommendations made in the Hadow Report of 1926 still continues. Progress has been slow—ten years after the Report's publication only a third of the schools had been reorganized—and educational policy and even public opinion has outrun these reforms. New ideas have become influential so rapidly that local directors are trying them out while the official reorganization is still in progress.



State Secondary Schools

Children proceed to these schools as the result of examinations which are usually taken at the age of 11.

↓

Universities and Technical Colleges or jobs.

Selective Senior or Central Schools

Children who have missed the Secondary Schools may, in areas where such provision has been made, proceed to a Selective Senior or Central School, where the curriculum is less academic than that of the Secondary School.

↓

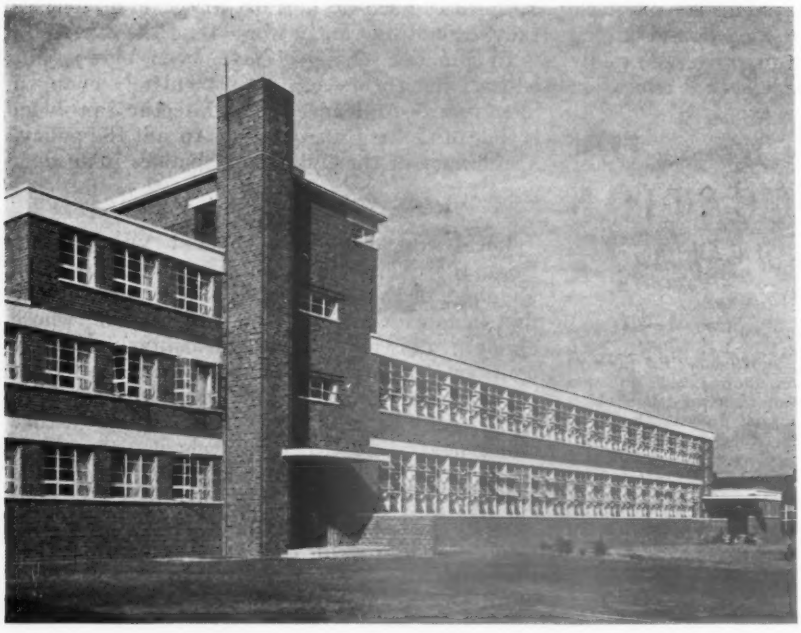
Technical Education or jobs at the age of 15 plus.

Non-Selective Senior Schools

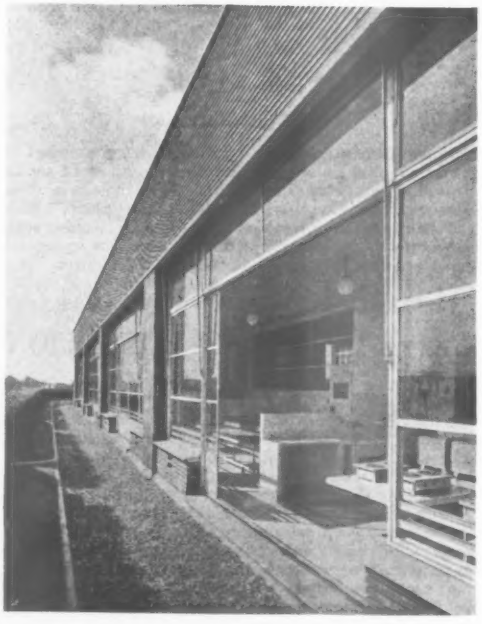
All other children proceed (where reorganization has taken place) to Non-selective Senior Schools or departments, at the age of 11, irrespective of mental ability. Where reorganization has not taken place, children are recruited from the Junior schools according to mental ability after the cream has been skimmed by the Secondary or Selective Senior Schools.

↓

To jobs at the age of 14 plus.



Left : A Middlesex mixed junior school for 580 children, by W. T. Curtis (H. W. Burchett, architect for schools). Below : A domestic science room with window - wall opening on to a garden ; a senior school at Vanves, France.



It will therefore be helpful to list the three important "new policies" which have come into being since 1920.

1. The Official Policy

*School Reorganization under the Hadow Report**

This Report should be read by everyone called upon to design a school. The outstanding change advocated was that every child should pass through a Senior School from the age of 11 to 14–15. Hitherto teachers in Junior Schools had naturally concentrated on the subjects most important for external examinations, so the majority of the children never rose beyond the Junior School and endured the same syllabus again and again.

Under the new system it is intended that all children will move on at the age of 11–12, wherever possible to a different building (with the consequent need for more Senior Schools), and thus have a chance of their interest being aroused by the more varied and active training now encouraged.

It is eventually intended that Infant, Junior and Senior Schools should all be separate buildings. At present financial reasons and population distribution are causing "combined" schools to be built in many areas—such as Infant and Junior, Junior and Senior, and even all-age schools.

The system of the official policy of reorganization is shown in diagrammatic form on the previous page.

2. The Progressive Policy

This has some things in common with the official policy, but goes further. The official scheme of reorganization is naturally concerned with detail problems—local prejudices, difficulties of adaptation to suit areas of differing size and population and, above all, cost.

The second outlook is wider. For the architect its chief significance is the diminuendo of the classic trio—classroom, book and desk. There is general approval of light, open-air classrooms, physical activity of all kinds and practical work as opposed to bookwork for about half of the children's working hours.

In addition, the progressive policy holds that the best way to prepare children for being intelligent adults is to interest them in some of the pursuits of intelligent adults. As a result, the school assembly hall becomes a much more important element in education; and school libraries intended to be used as reading rooms

* The principal part of the Hadow Report was *The Education of the Adolescent:* 1926. H.M.S.O. Price 2s. Other sections are: *The Primary School:* 1931, and *Infant and Nursery Schools:* 1933. H.M.S.O. Price 2s. 6d. each.

SCHOOLS

rather than book stores are beginning to appear.

The idea of a school as a social, cultural and recreational centre for all the local community has already been put into practice. This development is naturally likely to produce its best results in rural areas or other self-contained units.

3. The Nursery School Policy

This forms part of the progressive policy, but it is better treated separately in that it aims to fill a definite gap. At present no local education authority is compelled to make provision for children under 5 years of age, although it can do so, and get a grant for the purpose, if it likes. The large majority don't like, so Nursery Schools are nearly all carried on by private societies.

The *immediate* objective of the Nursery School movement is to guide the development of children whose parents cannot give them all the care necessary from the age when they cease to attend infant welfare centres (15 months to 2 years) until they go to school at 5 years.

The *ultimate* objective is to establish a new department in the state education system combining the Nursery Schools (now predominantly private and taking children from 2 to 5) with the Infant Schools (under local education authorities and taking children from 5 to 7) to form Nursery-Infant* Schools which will steer the children carefully from early childhood to the stage at which they are ready for the beginning of formal education about the age of 7.

The progressive Infant School with a Nursery *Class* attached is the forerunner of the Nursery-Infant School. Two of the latter schools are already in existence, and in one the whole range from pre-natal clinic to Infant School is grouped together, the mothers beginning attendance some months before the child is born. As the Director of Education has remarked, "this appears to set one limit to the education of any one generation."

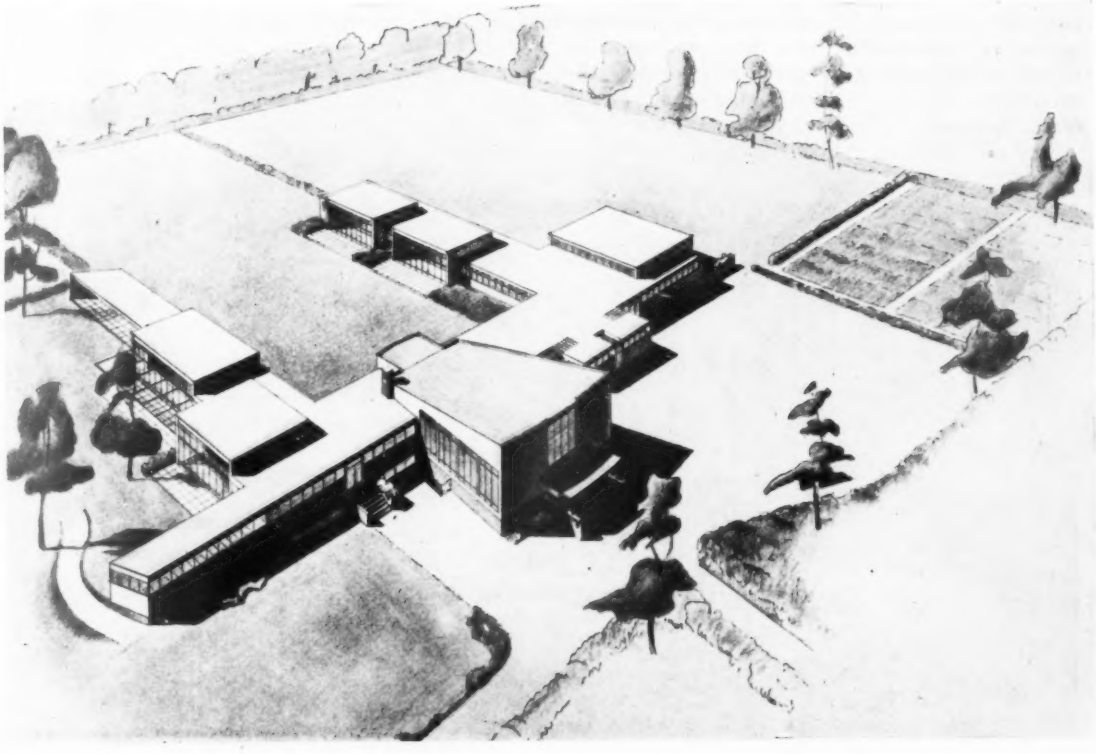
Despite the two principal objections to Nursery Schools—the cost involved and the fear of infection spreading easily — this survey has assumed that the movement has come to stay, that Nursery Schools will multiply and will be linked, within a reasonable number of years, with the state educational system as Nursery-Infant Schools.

The Next Ten Years

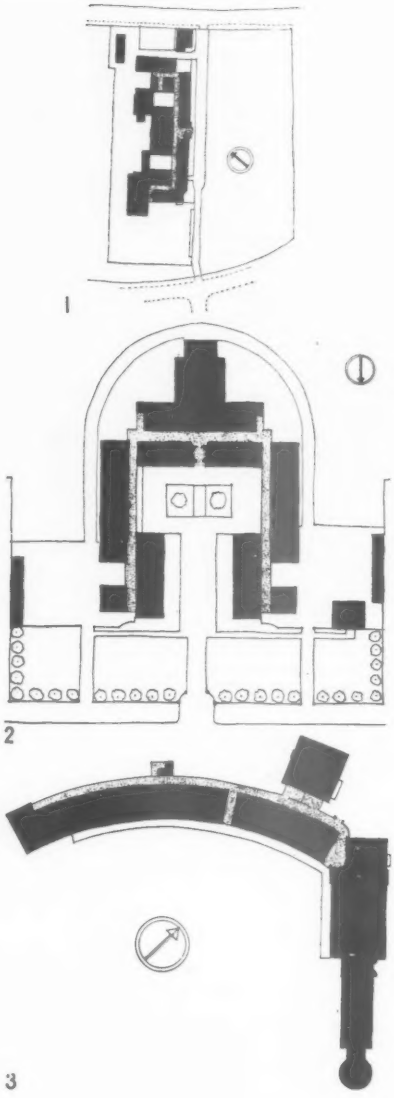
The outline which has been given of the main policies now influencing the state educational system has shown that the theories behind national education are complex. Even when they have been reduced to a programme of reform supported by the majority of educationists, they have still to be reconciled with existing facts.

The facts in local education are stubborn. Conservatism and a sensible appreciation of the

* This unsatisfactory name is used because it is already well known and because it expresses the idea of amalgamation between present *Nursery* and *Infant* Schools. In time no doubt such schools will simply be called Nursery Schools.



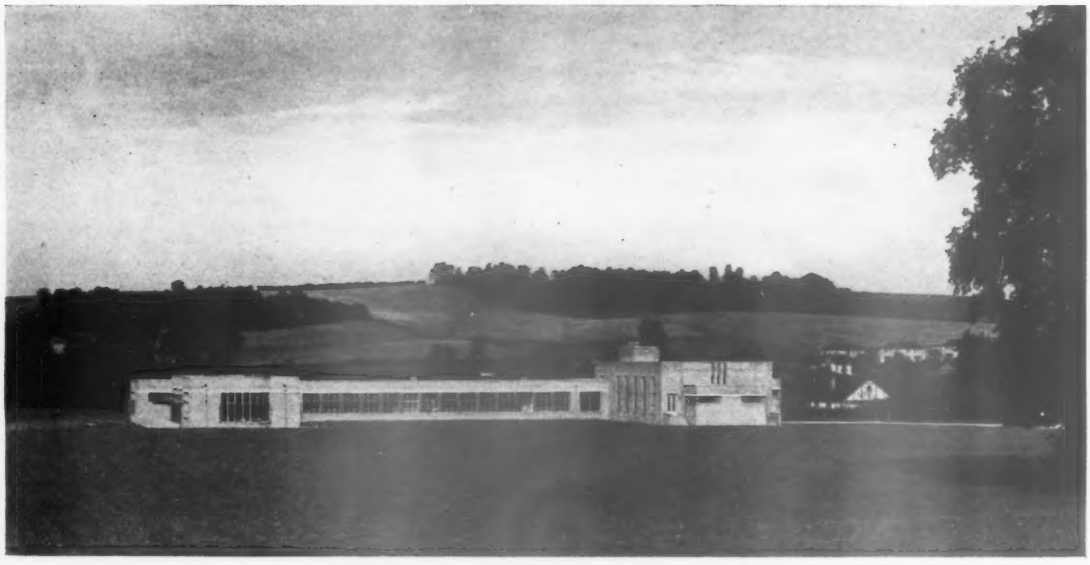
Village college in Cambridgeshire, by Walter Gropius and E. Maxwell Fry; an all-age school (necessary in dispersed rural areas) for children from 2 to 15. It also serves as adult community centre.



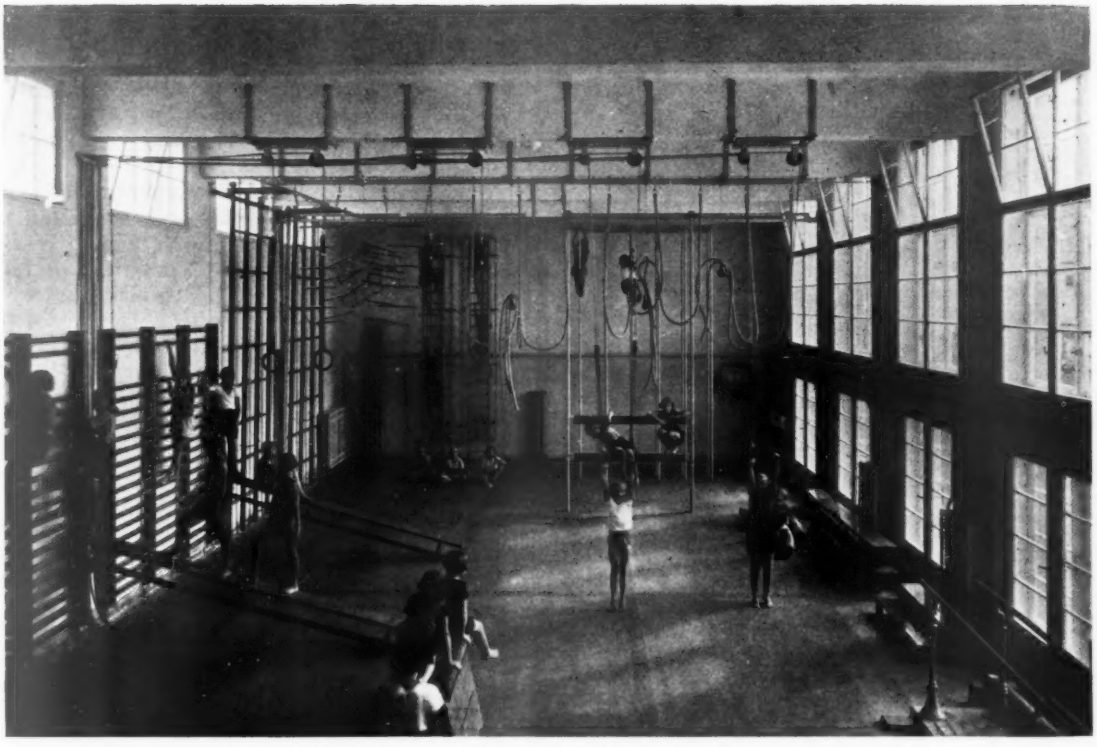
Above: Garden play in a nursery school in Chelsea. Right: Three progressively more open plans. 1, 1920 L.C.C. school; 2, school at Birkdale, won in competition, 1928, by Grayson and Barnish; 3, school at Bottisham, by S. E. Unwin. Below: Village college at Linton, Cambridgeshire, by S. E. Unwin, opened October, 1937.

value of money; thousands of buildings unsatisfactory as schools, but strongly built and still watertight; shifting populations; general expectation of a continuing fall in the birth-rate; general dislike of rising rates—all these must tend to make good schools slow in coming and may tempt the architect to give his educational clients what they have always had and probably will be ready to have again.

Differences in details of policy and difficulties in the way of reforms do not, however, prevent general agreement about what new schools ought to be like in their major features. And since these agreed improvements have the backing of the Board of Education it may be expected that architects will have some encouragement to carry them out. The most important are:



SCHOOLS



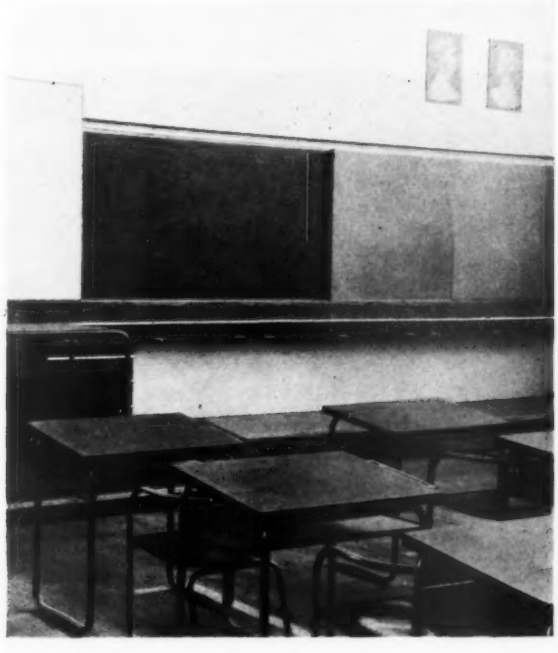
Gymnasium in the municipal school at Kagran, Vienna.

1. Larger sites for all schools, with space for gardens and playing-fields for Junior and Senior Schools.

2. Looser grouping of the units of buildings, with classrooms capable of being thrown almost entirely open. Classrooms, particularly for younger children, should be on the ground floor.

3. Book-learning at desks is considered of less importance than before. Active work, such as handicrafts, drawing, gardening, science and domestic training, must have greater provision made for it. Fixed desks and heavy furniture of any kind are being abandoned for light chairs and tables and more space provided for them.

4. Assembly hall and library should be given more dominance and the former equipped for music, drama, cinema and radio. In Senior Schools they should be planned as a self-contained



A contrast in desks : above, American fixed two-seater desk, 1865 model. Right, light, easily movable desks of tubular aluminium construction in an Italian school, 1935.

Circular library in the new school at Linton.

unit capable of serving the local community as well as the children.

5. Much more attention should be paid to form, design and colour in school surroundings in order that elementary good taste will not remain a " book-learnt " conception.

6. Poor national standards of physique are now a matter of public concern. In consequence, gymnasia and provision for midday meals will be included in most new school projects.

7. Educationists have now come to a fair agreement that heavy, permanent school buildings are a mistake. They consider that school buildings should be light—both in reality and effect—and easily altered or extended. The ideal school, constructionally, is one which will be efficient for 30 to 40 years only, be proportionately cheaper to erect and easier to remove, have a high demolition value and cost nothing for maintenance. Such a constructional system has not yet appeared but it remains a fascinating problem at a time when the possibilities of prefabrication are still being tested.

These changes in elementary schools are large enough to make smaller and more disputed questions relatively unimportant. If carried out they would enormously improve national education.

This survey is concerned with recent achievements and future possibilities in school buildings for children between the ages of 2 and 15 years. To some extent immediate practical usefulness, in data and dimensions given, must be sacrificed in such a survey. The lists of dimensions and arrangement previously considered satisfactory are now being called in question—while no rule of thumb schedules have yet been prepared for schools of the new idea. Suggestions will be made and examples given wherever possible, but the validity of these generally for the schools of the next ten years must depend, pre-eminently, upon whether larger grants become available.

The conservatism of education committees will no doubt be gradually overcome, their feeling that the best school is the one most like a town hall may change, and the " lighter " conception of a school may lead to better value for money by the fuller use of new materials. But there are limits to the good effect of such developments; and anyone studying the question must realize that first-class schools will cost more.

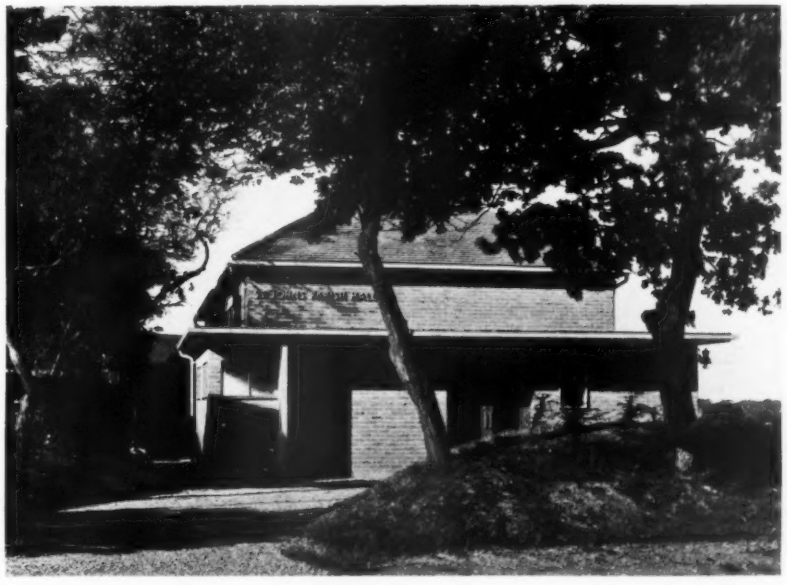
At present in building large senior schools, say, for 480 children, it is usual to " bear in mind " a cost of about £50 per head—or £24,000 for the building. And the building is expected to last a very long time. At the same time it is quite common for a local authority to pay £50,000 to £100,000 for administrative headquarters housing from 100 to 200 employees during working hours. It is assumed that such disproportion will gradually be corrected. There is already evidence that where a local authority makes a special effort to build a progressive school the Board of Education is equally ready to help.

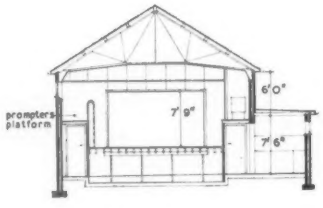
The winning design in *The News Chronicle* competition for a rural mixed senior school for 160 children. Durell, Penn and Walter, architects. Model by Kenneth C. McCutchon.

VILLAGE HALL AT OLD COULSDON

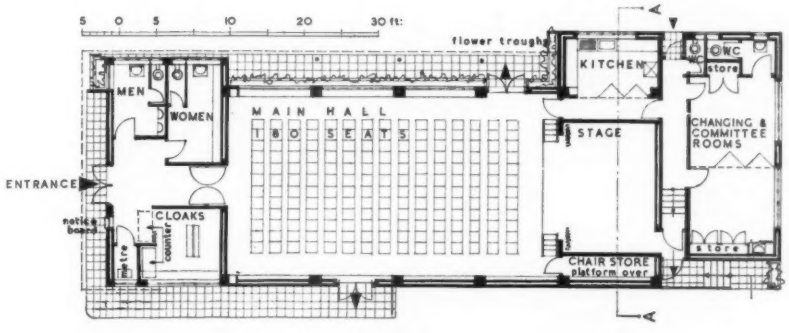
DESIGNED BY

R. GARDNER-MEDWIN

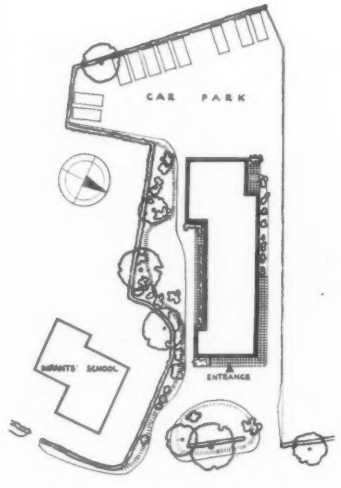


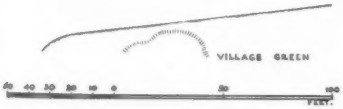


SECTION



PLAN





SITE PLAN

GENERAL.—*The building faces a village green and recreation ground. Walls are of even-textured, orange-red Sussex bricks, with horizontal joints emphasized. The local authority insisted on a pitched roof, which is warm brown, sand-faced tiles. (Flat roofs are of bituminous felt on boards.) Doors and window frames are cobalt blue, other paintwork buff.*

PLAN.—*The building serves the usual purposes of a village community hall and is equipped for theatricals and lantern lectures. The stage has prompter's and light-control platforms over the chair store and passage. The main hall has access to a covered terrace and "tea-garden." By means of folding doors the kitchen can be expanded to form a kitchen-servery when banquets or parties are held in the main hall. The convertible changing or committee-rooms in the rear have an independent entrance and can be used for welfare work.*

CONSTRUCTION.—*11-in. cavity brick walls, steel stanchions and light steel trusses. Standard metal windows.*

SERVICES.—*Heating is by thermostatically controlled built-in electric vectairs; lighting in the main hall is by six reflectors flush with the ceiling. Emergency lights and cooking are by gas, with switch control. Hot water by automatic gas heaters.*

INTERIOR FINISH.—*Floor of main hall and stage, maple strip on wood joists; other floors, asbestos composition on concrete. Walls, distempered plaster and plastic paint. Compressed fibre board under sill and for movable stage panels. Ceilings, insulation board, unpainted.*

Chairs are folding type in natural polished birch.
Colour in main hall is yellow-buff toning with wallboard and brick, paintwork and window curtains rich terracotta, stage curtain flame-red.
Above, the main front, facing the village green.

VILLAGE HALL AT OLD COULSDON

DESIGNED BY

R. GARDNER-MEDWIN

COST—*Including built-in furniture and equipment, £2,550, cubing at 1/1½d. a foot. The photographs show, left, the interior, showing the built-in electric vectairs and part of the stage.*

For list of general and sub-contractors, see page 724.

The Architects' Journal **Library of Planned Information**

INFORMATION SHEET

SUPPLEMENT

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505 : Aluminium
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559 : Flashing
560 : Kitchen Equipment
561 : Asbestos-Cement Roofing
562 : A.B.M. Rainwater Gutters and Fittings
563 : Asbestos-Cement Roofing
564 : The Equipment of Buildings
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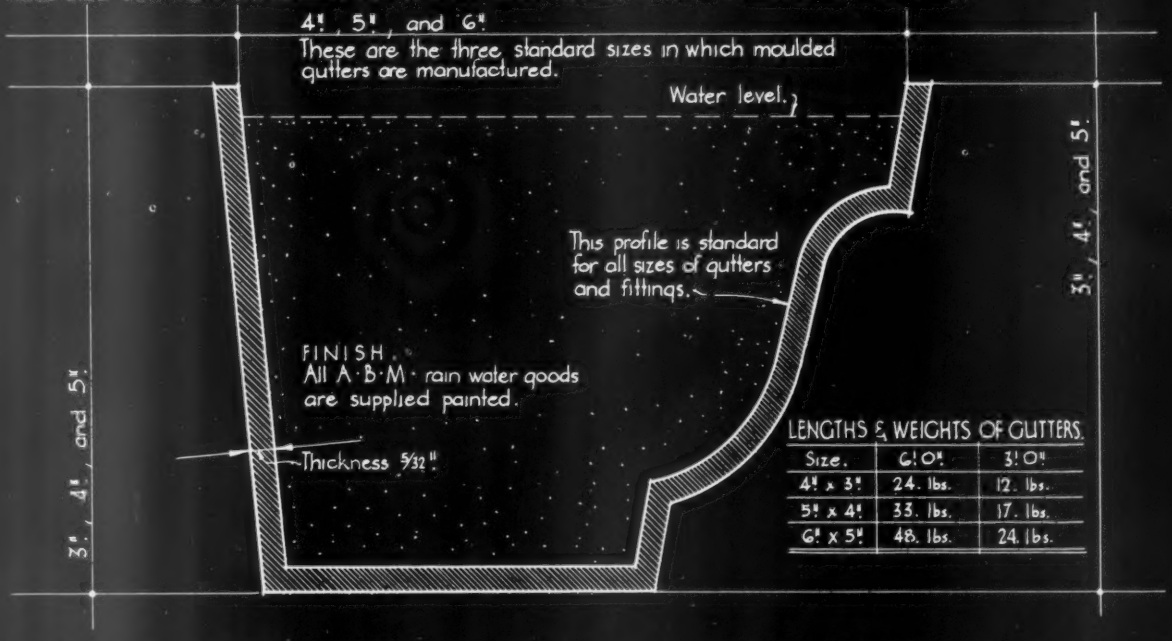
FULL SIZE SECTION THROUGH AN A·B·M· CAST IRON 4" x 3" MOULDED GUTTER.



LENGTHS & WEIGHTS OF GUTTERS.

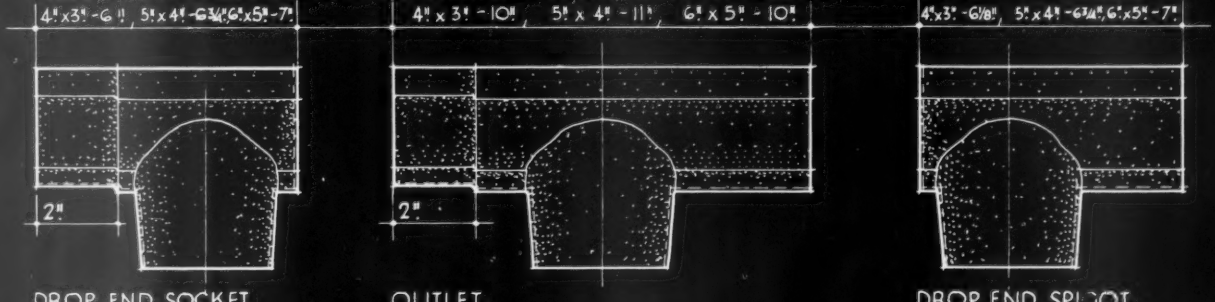
Size.	6'0"	3'0"
4" x 3"	24. lbs.	12. lbs.
5" x 4"	33. lbs.	17. lbs.
6" x 5"	48. lbs.	24. lbs.

TABLE SHOWING SIZE OF GUTTER REQUIRED TO DRAIN A GIVEN FLAT SURFACE AREA. (See back.)

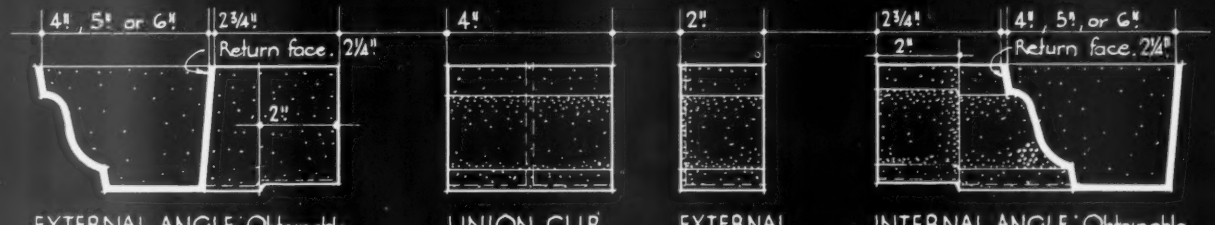
Area of flat surface to be drained, sq.ft.	Size of A·B·M· moulded gutter required.	Effective cross sectional area of gutter.	Size of drop.	Size of down pipe required.
550.	4" x 3".	7¾. sq. ins.	3".	3".
1000.	5" x 4".	12¾. sq. ins.	3".	3".
1600.	6" x 5".	19¼. sq. ins.	4".	4".

Data based on storm rainfall of 3" per hour, with a generous safety margin & allowing for one outlet.

QUARTER FULL SIZE DETAILS OF FITTINGS FOR A·B·M· MOULDED GUTTERS.



DROP END SOCKET. OUTLET. DROP END SPIGOT.



EXTERNAL ANGLE: Obtainable in either square or obtuse angles. UNION CLIP. EXTERNAL STOP END. INTERNAL ANGLE: Obtainable in either square or obtuse angles.

Information from Associated Builders Merchants Ltd.

INFORMATION SHEET: GUTTERS N°·3 : MOULDED CAST IRON GUTTERS AND FITTINGS:
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

INFORMATION SHEET • 570 • A.B.M. MOULDED GUTTERS AND FITTINGS

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INFORMATION SHEET

• 570 •

A.B.M. MOULDED GUTTERS AND FITTINGS

Product : A.B.M. Cast Iron Moulded Rainwater Gutters and Fittings

This Sheet deals with A.B.M. cast iron moulded gutters and fittings. The gutters are made in 6 ft. and 3 ft. lengths and in three standard sizes, 4 in. wide (overall) by 3 in. deep (overall), 5 in. wide by 4 in. deep and 6 in. wide by 5 in. deep. A complete range of fittings is available for each size.

Design of Gutters :

The design of A.B.M. gutters is based on the required water carrying capacity of a gutter to drain a given roof area, and the size of gutter outlet to dispose of the water in the gutter sufficiently fast to prevent flooding. It should be understood that it is not the sloping area of the roof that determines the gutter capacity, but the horizontal area covered by the roof slope. This is referred to in the table on the front of the Sheet as "flat surface area."

The table on the front of the Sheet shows the maximum recommended areas that can be drained by the moulded type of gutter. For draining roofs with a smaller surface area it is suggested that A.B.M. Half-round or Ogee type gutters may prove more suitable. These were dealt with in previous Sheets of this series.

Right-hand inside sockets, which give a flush line to the exterior of the gutter are a standard feature throughout the range of moulded gutters and fittings.

Gutter Fittings :

The fittings shown are available in all three standard sizes. The gutter outlets have been designed so that there is no restriction at the point of outlet, the internal diameter of the outlet being the same as the down pipe into which it discharges.

The angles are available either right-angled or obtuse-angled, and for internal and external angles.

Previous Sheets :

The first five Sheets in this series dealing with A.B.M. products are Nos. 540, 555, 558, 562 and 566.

Standardized Designs :

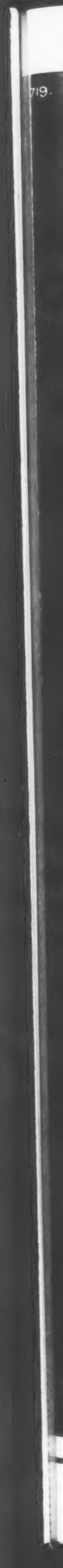
The Associated Builders' Merchants is a non-trading organization devoted to the standardization of the design of building materials and equipment.

Materials and equipment made by a number of manufacturers are stamped with the following symbol 

indicating that they conform to the standard of design and quality laid down.

Information from: The Associated Builders' Merchants, Ltd.

Address: Peters Hill, Upper Thames Street, E.C.4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SOLID FUEL FIRED HEATING INSTALLATIONS: HEATING CHAMBERS, FUEL STORES, & FLUE STACKS:

NOTE: The sizes of flue indicated above the heavy line in the following table should be provided whenever possible.

No allowance has been made for the reduction of chimney area at the top by the use of terminal fittings.

Additional space should be provided in heating chambers & fuel stores if hot water supply apparatus is to be installed.

Figures denoting volume represent the actual space to be heated.

Allowance has been made in the size of heating chambers for mechanical stoking plant.

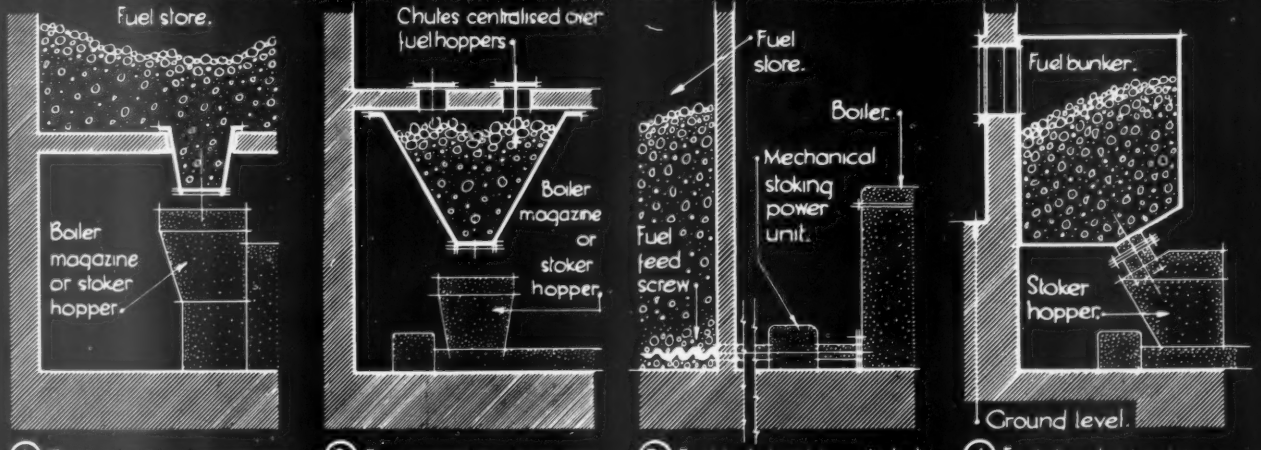
The sizes for fuel stores allow space for approximately 2 weeks' supply under average winter temperature conditions.

The figures showing the required cross-sectional areas of flue stacks assume the use of circular or square flues of normal section, without excessive bends and with natural draught.

APPROXIMATE SPACE REQUIRED FOR BOILER PLANT, & FUEL STORE, & APPROXIMATE FLUE STACK SIZES.

VOLUME OF SPACE TO BE HEATED. IN THOUSANDS OF CUBIC FEET.	HEATING CHAMBER.		FUEL STORE.		INTERNAL CROSS-SECTIONAL AREA OF SMOKE STACK. IN SQUARE INCHES.					
					Height of smoke stack in Feet.					
	Area in Sq: Ft:	Height in Feet.	Area in Sq: Ft:	Height in Feet.	25	50	75	100	125	150
25 to 50	90	8	15	8	80	•	•	•	•	•
50 " 100	150	9	20	9	110	•	•	•	•	•
100 " 250	200	10	40	10	170	120	100	•	•	•
250 " 500	250	11	90	11	320	230	190	160	140	130
500 " 750	320	12	170	12	520	370	300	260	230	210
750 " 1000	430	13	250	13	770	550	450	390	360	320
1000 " 1500	520	14	330	14	•	730	600	520	470	430
1500 " 2000	540	15	450	15	•	1080	880	790	710	650
2000 " 2500	575	16	520	16	•	•	1200	1040	920	840

ALTERNATIVE METHODS OF STORING FUEL FOR MECHANICALLY OR GRAVITY FED BOILERS.



① The fuel store is arranged over the heating chamber, with gravity feed to the fuel hoppers.

② Fuel stored in chutes over the fuel magazines or hoppers, with access from overhead.

③ Fuel fed direct from the fuel store to the boiler by a motor driven automatic conveyor.

④ Fuel stored in bunkers over the stoker hoppers or fuel magazines, with outside access.

Information from the Coal Utilisation Council.

INFORMATION SHEET: SOLID FUEL BURNING HEATING INSTALLATIONS:
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 571 •

FUEL STORAGE—I

Approximate space required for Boiler Plant and Fuel Store and Approximate Flue Stacks.

Sketch No. 1 shows a method of storing fuel that may be used when there is accommodation available for the fuel on the floor directly above the boiler house, and can be stored so that it covers the opening to the chute over the boiler or stoker hopper.

Sketch No. 2 shows an alternative method whereby the fuel is stored in the boiler house in a hopper, above the boiler or stoker hopper, which is filled through chutes in the floor above, access to which must be provided for unloading purposes.

Sketch No. 3 shows the fuel storage at the same level as the boiler to which it is fed through a conveyor tube operated by the stoker. The angle of fuel feed to the stoker and the position of the stoker may be varied to suit conditions.

Sketch No. 4 shows another method of storing fuel in a hopper, above the boiler or stoker hopper, which is fixed against an external wall so that fuel may be delivered to the hopper direct from outside the building.

Solid fuel is supplied to the consumer in various forms, the characteristics of which vary considerably. For general utility purposes they may be classified as follows :—

1 : Bituminous coal, which may be either of the free-burning type, caking coal, or coking coal.

2 : Low volatile coal (sometimes called semi-anthracite, semi-bituminous or dry steam-coal).

3 : Anthracite.

4 : Coke.

5 : Low-temperature fuel.

Bituminous Coal is the term used to describe coals in which the proportion of volatiles is from 20 to 45 per cent.

The word "bituminous" is derived from the similarity of the flame of this coal to that of bitumen or pitch, although actually there is no bitumen in coal. Bituminous coal is easy to ignite and will burn with the minimum of draught.

The following are some of the principal trade names of bituminous coal, in order of size, beginning with the largest; but the list is not fully comprehensive and must be supplemented by practical experience of local conditions: Selected, Best Hand-picked, Large House, House Cobbles, Cubes and Chirls, Cobble Nuts, Large Nuts, Treble Nuts, House Nuts, Small Nuts, Beans, Peas.

Free-Burning Coal is so named because the individual lumps do not stick together during the process of combustion.

Caking Coal is a type in which the pieces when heated stick together, but do not swell.

Coking Coal differs from caking coal in that the pieces not only stick together but swell and fuse to form a composite mass.

Low Volatile Coals (sometimes called semi-anthracite, semi-bituminous or dry steam coals) are those containing only from about 9 to 20 per cent. of volatiles. They are noted for their smokeless characteristics and high calorific value.

Anthracite contains only from about 4 to 9 per cent. of volatiles. It burns smokelessly with intense heat and without luminous flame. Anthracite has a higher ignition temperature than bituminous coal and requires an ample draught.

The names and sizes of anthracite coals produced in the Welsh and Scottish coalfields do not always coincide, but the following are the common names of the principal grades, again beginning with the largest sizes: Large; Selected Malting Large; Horticultural Large; Cobbles; French Nuts; Stove Nuts; Pea Nuts (Boiler Nuts); Beans; Peas; Grains; Rubbly Culm; Billy Duff; Breaker Duff.

Coke is a fuel obtained by "carbonising" coal, that is to say heating it in a retort and driving off the volatile matter. It is known as gas coke or furnace coke, according to whether it is produced at gas-works or coke-ovens. For domestic purposes gas coke and furnace coke are generally interchangeable.

Through the influence of the London and Counties Coke Association, the different sizes of gas coke have been standardised throughout London and the Home Counties, and a list of the names and sizes is given as follows :—

Name	No.	Size
Large or Unbroken	1	Over 2 in.
Broken ...	2	1 in. to 2 in.
Coke Boiler Nuts	3	½ in. to 1¼ in.
Forge Beans ...	4	⅜ in. to ¾ in.
Breeze	Through ½ in. (not graded)	

Low Temperature Fuel (or semi-coke) burns without smoke but differs from gas or furnace coke in that it has been carbonized at a lower temperature, with the result that it retains about 10 per cent. of volatile matter. There are several low temperature carbonization processes, producing fuels sold under such trade names as "Carlbrite," "Coalite," "Nostlite," "Rexco," "Suncole," etc.

Furnace Coke. The screen sizes of furnace coke vary even within the same district, and the following is only a rough indication of the approximate sizes which are usually marketed. Different sizes are sold under various names, but the descriptions here given are the most common :—

Large, usually over 2½ ins.; Trebles, usually about 1½ in. by 2½ ins.; Doubles, usually about 1 in. by 1½ in.; Singles, usually about ⅝ in. by about 1 in.; Beans, usually about ⅜ in. by about ⅝ in.; Breeze, through ⅜ in. sometimes through ½ in. or ¾ in.

Calorific Values. The approximate calorific value (or heat content) of the various fuels is as follows :—

Fuel	Approximate Calorific Value. B.Th.U.s per lb.
Bituminous Coal	13,000
Anthracite ...	14,500
Coke	10,000—13,000

Suitability of Fuels. To get the fullest efficiency out of an appliance, and the best value for the money spent on fuel, it is essential that the latter should be suitable for the particular appliance in which it is burned. The following fuels are recommended by the technical staff of the Coal Utilisation Council for various appliances :—

Open Fires. Bituminous house coal of good quality and of "large" or cobble size; low temperature fuel; or, in specially adapted grates, free-burning low volatile coals and graded gas coke or furnace coke.

Continuous-burning Stoves (according to design).—Anthracite or low volatile coals of appropriate size; low temperature fuel; gas or furnace coke of nut size; kitchen nuts; or a mixture of kitchen nuts and coke nuts.

Cookers (according to design).—Kitchen nuts or cobbles; anthracite; low volatile coals; gas coke or furnace coke.

Hot-water Boilers (according to design).—Anthracite boiler nuts; low volatile or bituminous coals of nut size; graded gas coke or furnace coke.

These recommendations are necessarily general in character, but the Council's engineers are always ready to give more precise information as to the most suitable fuel in any particular case.

A technical staff is available for further information on problems relating to solid fuel, its uses and equipment, and information of this nature can be obtained at any of the addresses given below.

Also available are two Technical Bulletins: "Heating Efficiency in the Home" and "Central Heating with Solid Fuel," for those who are requiring further information on heating problems.

Information from : Coal Utilisation Council

Head Office and Southern Branch :
British Industries House, Marble Arch, W.1
Telephone : Mayfair 0511

Midland Branch :
Essex House, 27 Temple Street, Birmingham, 2
Telephone : Midland 3736

Eastern Branch :
Alliance Chambers, 19 Horsefair Street, Leicester
Telephone : Leicester 65011

North-Eastern Branch :
38-39 Pearl Chambers, East Parade, Leeds, 1
Telephone : Leeds 23616

North-Western Branch :
38 Deansgate, Manchester, 3
Telephone : Blackfriars 4081

Scottish Branch :
81 Mitchell Street, Glasgow, C.1
Telephone : Central 146

Irish Branch :
Bank of Ireland Chambers, 1-2 Westmoreland Street, Dublin
Telephone : Dublin 23034

South Wales and South Western Branch :
United Kingdom Provident Buildings, 14-16 Baldwin Street, Bristol, 1
Telephone : Bristol 24797

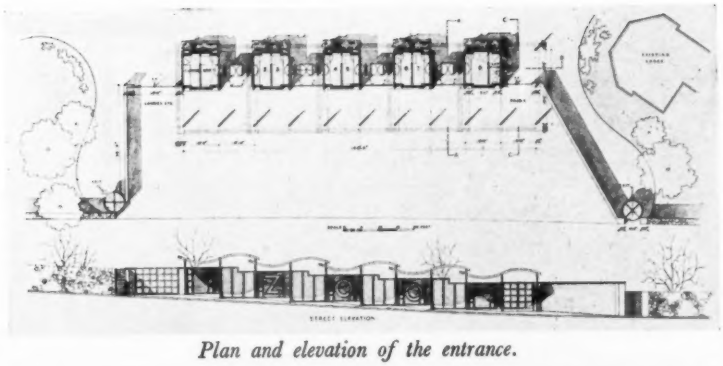
ZOO AT DUDLEY, WORCESTERSHIRE

DESIGNED BY TECTON

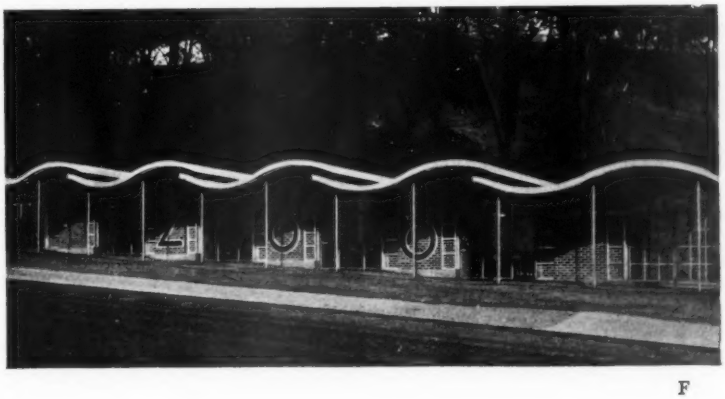
GENERAL PROBLEM—*Dudley Zoo was opened this summer as a place of public resort and entertainment for the large population of the neighbourhood of Birmingham, Dudley and Wolverhampton. About fifteen buildings, including a restaurant and two cafés, have been erected.*

SITE — *The thickly-wooded surrounding grounds of Dudley Castle, slope down steeply on all sides, forming terraces at different levels. The castle is scheduled as an Ancient Monument and comprises buildings now in a half-ruined state, of the eleventh to the fifteenth centuries, built round a central courtyard. The site of the Zoo comprises some 30 acres.*

The photographs show : two views of the entrance. There are eight pairs of entrance turnstiles, each pair consisting of one entrance for adults and one for children, and two exit turnstiles.



Plan and elevation of the entrance.



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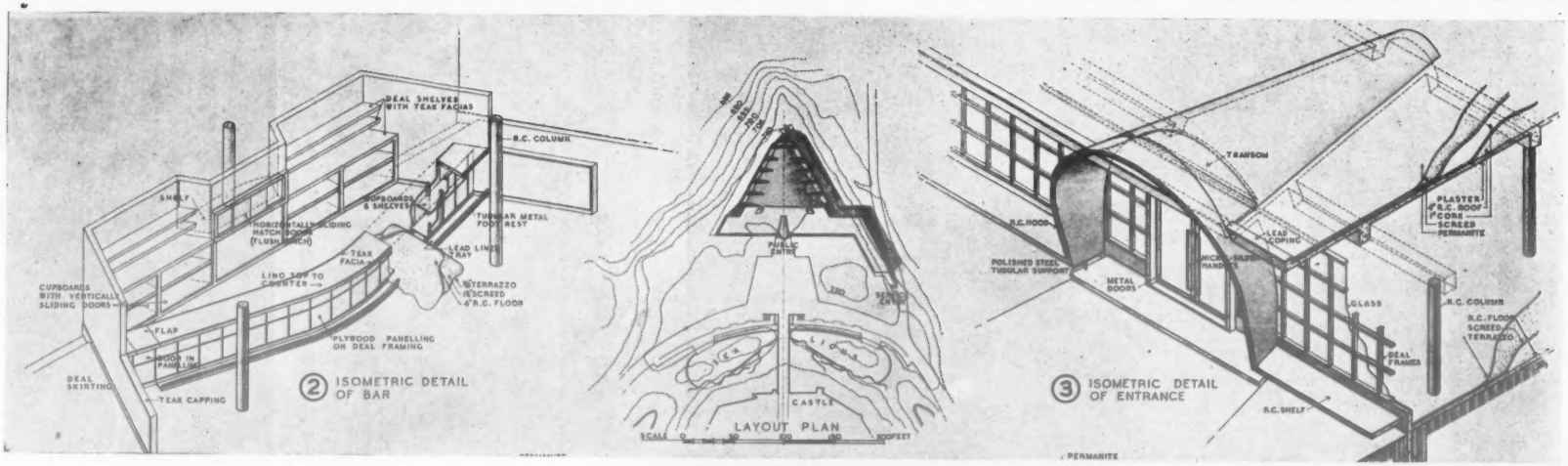
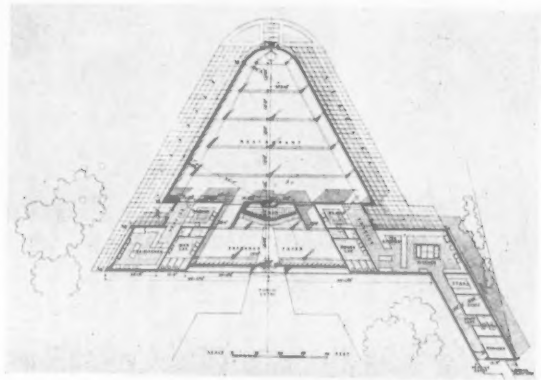
ZOO AT DUDLEY, WORCESTERSHIRE



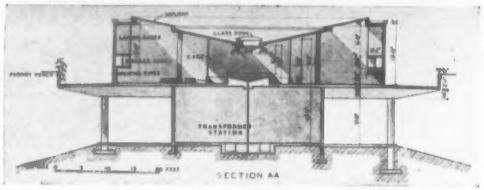


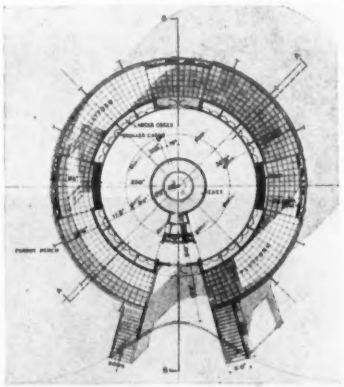
Plan and details of the Restaurant

DESIGNED BY TECTON

The photographs show two views of the restaurant.

The photographs show two views of the restaurant.



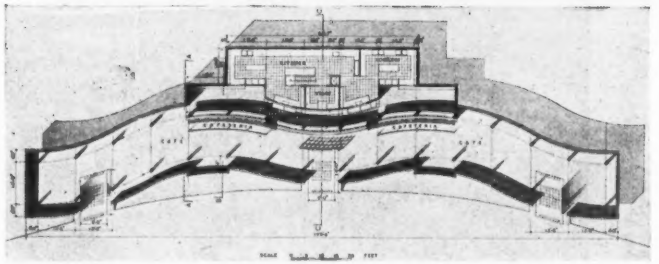


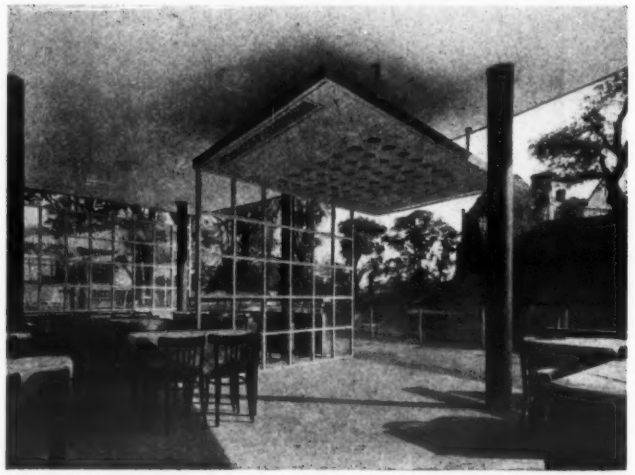
Plan and section of the bird house.

PLAN—*The selection of the positions for the different buildings and enclosures was conditioned by the steepness of the site and by the extensive old underground limestone workings, no chart of which existed to show their position. The presence also of big outcrops of very hard limestone in many parts of the site, while offering a good foundation in certain cases, largely influenced the position and shape of the buildings due to the difficulty and expense of blasting any large amount of rock. The buildings placed near the castle, the restaurant, café No. 2, the elephant house, the sea lion pond, etc., had to be kept low and as inconspicuous as possible in character, and the restaurant had to be faced in grey limestone. The actual fabric of the castle was, of course, left entirely alone.*

THE ENTRANCE—*The stepped interlocking roof is in reinforced concrete supported on steel columns and shelters the queues awaiting admission. The slots along the front of the slabs lighten the effect of the roof and protect the front edge of the slab from streaking, through soot deposits being washed over the edge by oblique rain. The sub-structure, in blue brick, consists of the turnstile operators' boxes, lavatories, cloakroom, etc.*

The photographs show : below, the bird house ; right, the back elevation, plan and the interior of the café No. 2.





ZOO AT DUDLEY, WORCESTERSHIRE

The photographs show: above, a detail of the bear ravine and, left, a general view.

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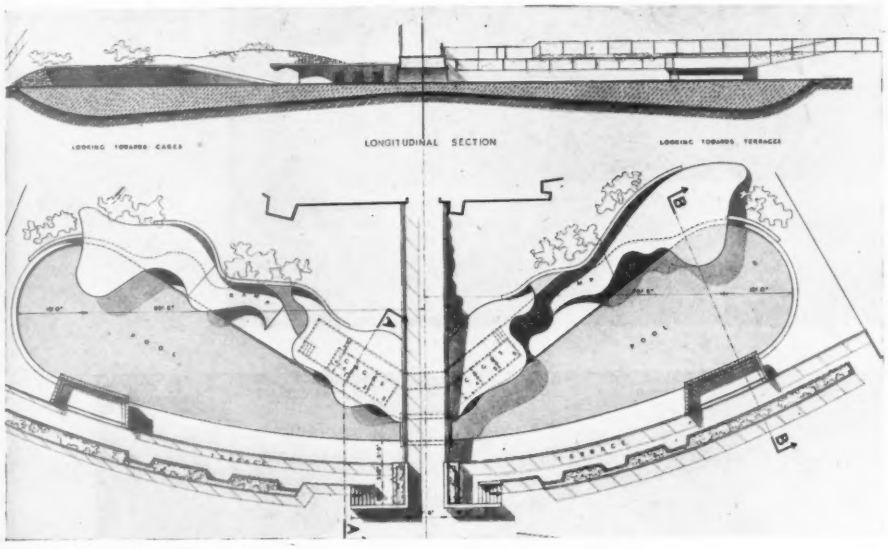
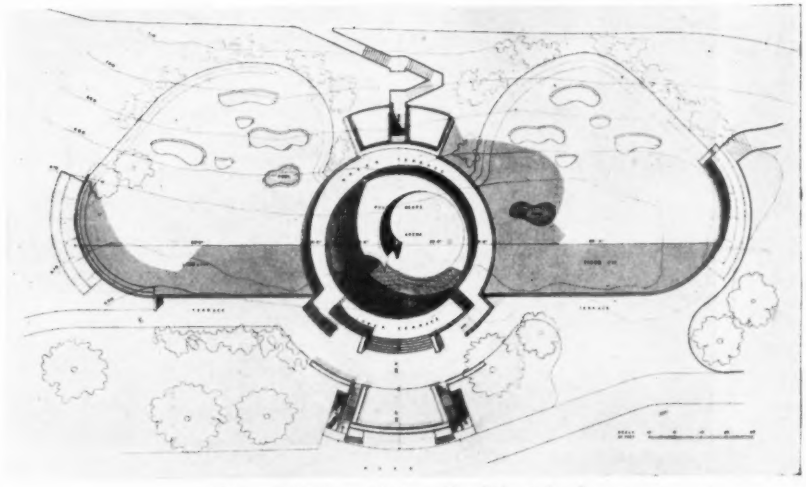


Left, plan and section of the sea lion pool. Above, a view of the pool.

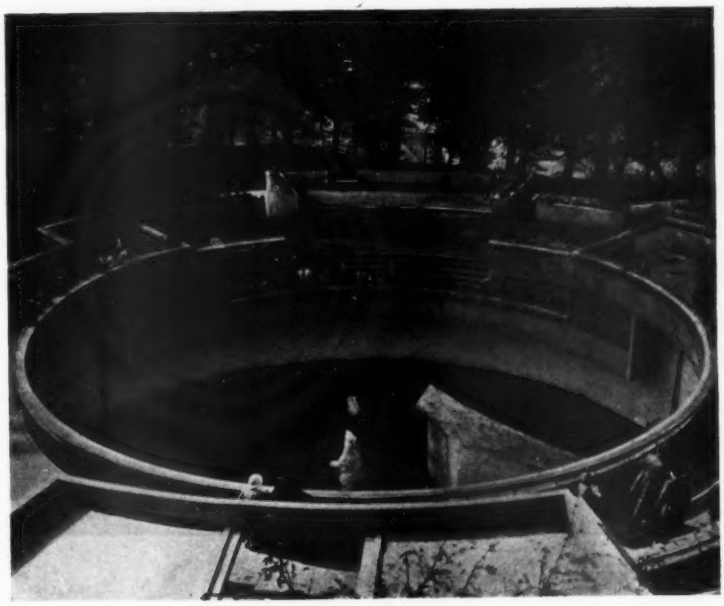
RESTAURANT AND ENCLOSURES—*Every one of the buildings is in reinforced concrete. The system used wherever possible avoided the necessity of accurate contour surveys by raising the buildings and terraces on isolated point foundations and columns, so that the nature of the ground needed only to be known at certain points, and the approaches and subsidiary parts of the building could be freely designed to suit the ground contours. The constructional work was standardized as far as possible. As a first step a standard public balustrade was designed which could be used in various forms and combinations. The shuttering for the balustrade walls was of corrugated iron sheets. In certain buildings (the bear pit and the polar bear pit) this balustrade has been developed into a standard public terrace, 10 ft. wide, supported at 20 ft. intervals by centrally-placed columns with mushroom capitals. For the cafés and restaurant a standard form of construction has been used, consisting of 9 in. diameter columns, carrying, by means of external and invisible beams, a flat slab which is flush with the underside of the beams. In the restaurant this is varied over the central part of the roof by giving the slab a conic surface, so that in the centre of the span it coincides with the top point of the beam, and the underside of the beam is exposed.*

The fencing for the paddocks was confined to two types, one suitable for comparatively large animals (deer, llamas, etc.) and one for small animals and birds.

The reinforced concrete roof over the central part of the bird house, in the form of a partial inverted flat cone, is structurally separate from the outer walls, being connected only by the double-glazed roof light which bridges these two parts of the building in a complete circle. All enclosures have been designed so as to be easily cleaned. Resilient cork composition floors have been laid in the animals' dens, water is laid on to a pool in every enclosure, and efficient water-changing facilities are provided for all the ponds.

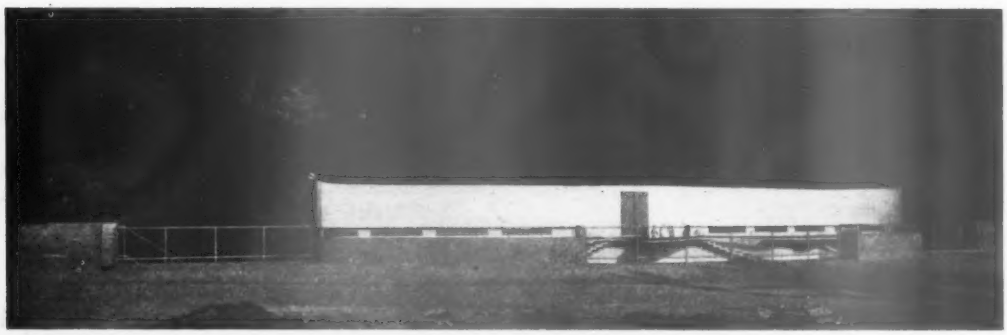


Plan, and below, photograph of the polar bear arena.

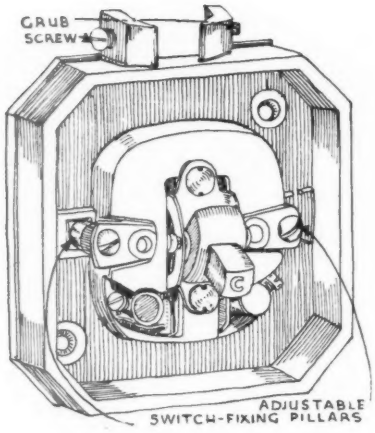


ZOO AT DUDLEY, WORCESTERSHIRE

DESIGNED BY TECTON



The photographs show : two views of the penguin pool and, left, the elephant house.
For list of general and sub-contractors see page 725.



TRADE NOTES

[EDITED BY PHILIP SCHOLBERG]

Economical Wiring

A RECENT booklet (*Flush Wiring for Houses of Low Cost*), published by Messrs. Crabtree, contains some interesting arguments on the question of flush and surface wiring. The Model Standard Specification for houses of low cost demands conduit, and it is quite safe to say that nearly every user infinitely prefers to see a plain flush switch plate and nothing else, though one must admit that it is possible to make quite a neat job of lead- or tough rubber-sheathed surface wiring. The type of wiring adopted for a new job, however, nearly always boils down to a question of cost, most architects assuming that the best—and the most expensive—is screwed conduit, the succeeding order, both in merit and cost, being slip-jointed conduit and then some form of surface wiring, either in lead or tough rubber.

•

Messrs. Crabtree point out, with some reason, that the material costs of the first-class conduit system compare quite favourably with the costs for alternative wiring systems, and that it is the cost of erection which makes conduit more expensive. Quite how far this is true at the moment, with cable and other prices jumping up, it is difficult to tell, but it is a sufficiently accurate generalization for purposes of argument. Assuming a rough equality in material costs, Crabtrees argue that the present costs of erection are higher than they need be, and point out that internal walls have not only become thinner, but that they also have less plaster on them, generally slightly less than ¾ in., and that the necessary chasing not only weakens the wall (and well it may with breeze blocks), but brings labour costs considerably above the cost of the conduit.

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To reduce this labour cost it is now quite usual to employ oval conduit for the wall drops to switches, with tees and elbows which enable round conduit to be used up to all junction points. This oval conduit makes it unnecessary to chase the wall down to the switch, but it is still necessary to cut away the wall for the switch box, and Crabtrees have therefore solved this half of the problem by evolving a flush switch assembly shallow enough to be accommodated in the thickness of the plaster without the need for a multiplicity of conduit adapters to preserve earth continuity. The drawing at the head of these notes shows the switch in its box; at the top is the entry for the oval conduit, this being fitted with a pair of cadmium-plated grub screws which grip the conduit firmly and also give a good earth connection. The switch-fixing pillars are adjustable to allow for variations in plaster level, and the switch itself can also be turned slightly out of centre so that the cover-plate will be plumb even when the box has not been set dead square. There is also a Jacelite box with knock-outs for conduit entry, and this type can accommodate leads running across the wall at an angle, though there is no earth continuity.

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Price is 23s. 8d. a dozen in brown, 27s. 4d. in white, these figures being for switch and the shallow cast-iron box; the same thing with the Jacelite boxes is 8d. a dozen cheaper.

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I do not suppose that the production of this accessory means that surface wiring is a thing of the past, but not every firm has the enterprise to find out exactly what is needed in each particular industry. Crabtrees are on the right track if they realize that the price of building materials is not going to come down very much, and that therefore the only way to cut costs is to make assembly quicker and easier.—(*J. A. Crabtree & Co., Ltd., Lincoln Works, Walsall.*)

1: Ascot boiling water heater. (*See note on right*).

Gas Water-heaters

It seems to me only a year or two since the Ascot people were making two very excellent instantaneous water heaters and nothing else. It is, of course, a good deal longer than that, even I have had one working quite happily since the summer of 1933, but there are now a lot more models for different purposes, two more having been added to the range during the last month or so.

•

The first is a boiling water appliance which looks rather like the normal sink heater by the same firm, but there is an additional control between the two taps arranged to give boiling, hot, or warm water. If the control is set to boiling and the water tap opened there is a pause of 40 seconds, after which the boiling water comes through at the rate of 2½ to 3 pints a minute on a gas consumption of 1·3 cubic feet a minute (gas of 500 B.T.U. calorific value). Only when the water reaches boiling point is there any steam pressure available to force the water over to the outlet pipe, so that boiling means boiling and not just very hot. Hot means hot—½ gallon a minute raised 100° F. from cold supply temperature, and warm means anything down to 1¼ gallons a minute raised 40° F., a fair figure for the supply temperature being 50° F., so that the water from the heater may be taken as averaging 150° to 90°. Finish is chromium and white enamel and fixing is quite easy, with only a ½-in. or ¾-in. gas pipe and a water lead direct from the mains, or from the supply tank if the available head is not less than 12 ft.

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Photograph 1 (left) shows that it is quite a neat little fitting, the only surprising feature being the blob on the end of the outlet spout. There is, however, a reason for this, for the bulbous shape contains an

2: Ascot bath geyser (see note below).

inner cone which forms an annular space for the exit of the steam, with a separate central hole for the smooth outflow of the boiling water.

•

The other fitting (2) looks very much like the old familiar multi-point type, but is intended for use as a bathroom fitting, there being a swinging spout so that the supply can be taken to the bath or basin. The knob on the right is a winter-summer temperature compensator, a half turn cutting down the rate of cold water supply during the winter, when the supply temperature may be assumed to be rather on the low side, so that the output of water from the geyser may be kept at the same temperature all the year round.

•

Otherwise the fitting seems exactly the same as the usual multi-point, but the manufacturers offer it as an improvement on the ordinary geyser, largely because it has nearly a gallon a minute greater flow—2 gallons a minute raised through 60° F. against the 1½ gallons of the average geyser. Both this and the boiling appliance, by the way, have the bi-metal safety strip which prevents any gas passing through the main burner unless the pilot flame is alight.

•

Both these fittings are up to the standard of neatness one expects from Ascots. Everyone remembers the amazing convolutions of water and gas leads that used to surround most water heating appliances, and then Ascots stepped in and scooped a lot of business with a heater that was neat and had no nonsense about it. Other manufacturers have admittedly pulled themselves together quite a lot, but compare water heater design today with what it was eight years ago and see how much Ascot influence there is in most other designs. Who can say now that the general public doesn't buy good design when it gets the chance? (*Ascot Gas Water Heaters, Ltd., 224 High Holborn, London, W.C.1.*)

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

Registration

THE Architects' Registration Bill, which was "talked out" last session, will come up in the House of Commons again this session. Mr. Lovat Fraser, who has drawn fifth place in the ballot for private members' Bills, is moving the second reading.

The King's Speech

The King's Speech in opening the new session stated that Bills would be introduced to amend the financial provision for slum clearance and the abatement of overcrowding, and to make further provision for the improvement of agricultural housing.

In the course of the debates on the motion for an address in reply to the Speech, Lord Ridley, in the House of Lords, welcomed the provision for housing. He said that while slum clearance over a great part of the country had been well started, the overcrowding programme could not be said to have been put into action very thoroughly yet. He was glad to see that there were to be certain adjustments of the financial arrangements. He hoped also that it would be possible to find some practical method of dealing with the question of rent restriction. Agricultural housing was an important question which needed the attention that he was glad to see the Government proposed to give to it. The standard of housing in the rural areas was well below that in the towns. A comprehensive measure to bring the Rural Workers' Housing Act up to date, and introducing special provision for the building of new houses in tural districts would be of inestimable value and help to increase the supply of agricultural labour. He was also glad to see the reference in the gracious Speech to Scottish rural housing.

In the House of Commons, Sir Kingsley Wood said that since the Armistice over 3,350,000 houses had been completed in this country. The number of approvals in respect of local authority building had been mounting, and for the first eight months of this year there were some 58,000 approvals as against some 46,000 in 1936. Over 70,000 houses were under construction at the end of September, which was a record high number for this country. Many thousands were being completed month by month. There had been some decline in house building by private enterprise, but it was uneven as between different parts of the country. The five-years' slum clearance programme had more than kept its promise. Ninety per cent. of that programme was represented by some 186,000 houses, and already the houses in submitted orders exceeded that number. The original programme had been continuously extended and the total revised programme now covered over 400,000 houses.

Some 650,000 slum dwellers had gone to better homes, and they were going by many thousands every month. Practically all the local authorities had fixed their appointed day from which the overcrowding provisions were to operate, but the fixing of the appointed day had not postponed the abatement of overcrowding in many areas. The programme of slum clearance and overcrowding still involved the erection of some 300,000 new houses so far as England and Wales were concerned. There was evidence to justify the hope that the peak in building prices had now been reached and they might be steadying for a fall. There was a need for a larger number of one-bedroom houses for aged persons, and of houses for large families requiring four or more bedrooms.

He was not satisfied with the progress which was being made in rural housing. A great deal more had to be done. It was somewhat difficult for some people to realize that a picturesque and attractive cottage was not necessarily a healthy home. A special problem in regard to the provision of new houses in the country districts was the gap between building costs and rents within the means of the agricultural worker. That gap was much wider in rural areas than elsewhere, and for that reason it was necessary to provide a special high rate of Exchequer assistance for agricultural cottages built under slum clearance and overcrowding schemes. He would therefore propose to Parliament to give Exchequer assistance towards the general provision of cottages for agricultural workers to be let at low rents.

Recently the Ministry of Health had been making intensive efforts to see that the advantages of the Housing of Rural Workers' Act were more widely known, and those efforts were bearing good fruit. In the quarter ending June last the number of applications for grants under that Act were one-third more than for the previous quarter ending in December last. Up to date they had received altogether applications for 12,000 dwellings and the total number of dwellings in respect of which grants or loans had been promised since the Act came into operation was now over 15,000. No one could say that that figure was satisfactory, and a good deal more had to be done. He was concerned that in this matter the artistic value of buildings should be preserved and that object was more likely to be achieved if owners would consider plans for reconditioning before action by the local authority arose.

He also agreed that it was just as important to create houses of architectural merit as to refrain from destroying them. He had lost no opportunity of bringing to the notice of local authorities the importance of this aspect of their housing operations. Undoubtedly the beauty of the English countryside depended largely on the erection of new buildings which were in harmony with the character of the older ones.

Sir J. Withers said he regretted that the King's Speech contained no reference to the preservation of the country's amenities and of places of historic and national interest. These amenities were still being damaged, and places of historic and national interest were still, to put it mildly, being jeopardized. The Ribbon Development Act and the Town and Country Planning Act were merely optional. Could it not be made compulsory for local authorities to put them into operation?

Later in the week, Sir Kingsley Wood was questioned as to the scope of the promised legislation. He said that he hoped to introduce in the near future a Bill dealing with the grants for slum clearance and overcrowding. The Bill would carry out his promise that contributions at the present rates should be payable for houses completed between March 31 and December 31, 1938, and would make new provision for grants for this purpose. He was at present in consultation with the Associations of Local Authorities as to the form and amount of these grants. He proposed also to include in the Bill provision to give effect to a recommendation recently made to him by the Central Housing Advisory Committee that Exchequer assistance should be made available towards the erection of houses for the agricultural population.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICT (15 MILES RADIUS)

CROYDON. *Houses, etc.* Plans passed by the Croydon Corporation : Block of flats, Brighton Road, Mr. J. E. Fox ; two shops with flats, Wickham Road, Mr. J. Sainsbury ; factory, Progress Way, Bailey Meters, Ltd. ; block of 16 maisonettes, adjoining 29 Warrington Road, F. W. Woolgar & Co. ; 62 houses and 24 flats, Davidson Road, and 54 houses and four flats, Crown Hill, Croydon Corporation.

CROYDON. *Hospital Accommodation.* The Croydon Corporation has approved a revised scheme for the provision of new operating theatres at the Mayday Hospital at a cost of £10,000, and has decided to erect buildings for the domestic staff at a cost of £6,500.

CROYDON. *School.* The Croydon Education Committee is to prepare plans for the erection of a junior school for 250 at Addington.

CROYDON. *School.* The Croydon Education Committee is to obtain a site in Featherbed Lane for the erection of an elementary school.

CROYDON. *School.* The Croydon Education Committee recommends the erection of a secondary school for 500 boys in Shirley Road.

CROYDON. *School.* The Croydon Education Committee is to obtain a site in the Waddon area for the erection of a nursery school.

EALING. *Flats, etc.* Plans passed by the Ealing Corporation : 48 flats, Ormesby Gardens, and 26 houses, Chinnor Crescent, Messrs. Comben and Wakeling, Ltd. ; 24 flats, Ealing Road, Mr. D. Griffiths ; 18 flats, Oldfield Lane, Clayton Farm Estates, Ltd. ; six shops with flats over, Petts Hill, Ealing Road, Mr. G. MacLean ; 30 flats, Woodfield Gardens, The Great Western Land Co., Ltd. ; 12 houses, Church Road, and 68 houses, Laughton Road, Henry Boot (Garden Estates), Ltd. ; 29 houses, Castle Road, The Hillingdon Estates Co. ; 30 flats, Montpelier Road, Messrs. Henry Boot and Sons, Ltd. ; 15 houses, Siverst Close, Hillside Estates (Southport), Ltd. ; 57 flats, Gunnersbury Avenue and Ealing Green, Davenport & Co., Ltd. ; houses, West End Farm, T. F. Nash Construction, Ltd. ; cinema, Western Avenue, Mr. W. J. King ; 34 houses, Stanley Avenue, B. Smith and Son (Builders), Ltd. ; 11 shops with 11 maisonettes over, Ruislip Road, Prices Tailors, Ltd. ; 52 flats, Sandall Close, Percy Bilton (Ealing), Ltd. ; 10 houses, Southdown Avenue, Mr. R. S. Rimmington ; 46 flats, Oldfield Close, R.S.P. Properties, Ltd. ; 72 flats, Eastcote Lane, Broadlands, Ltd. ; 30 flats, Woodfield Gardens, The Great Western Land Co. ; 28 shops with flats over and 136 flats, Petts Hill and Danemead Grove, Mr. Leslie Raymond ; 51 flats, Gunnersbury Avenue, Mr. Stanley R. Mence ; 12 shops with flats over and 28 flats, Greenford Road and Oldfield Lane, Mr. Thomas Braddock.

EALING. *School.* The Ealing Education Committee is to prepare plans for the erection of a new school to accommodate 460 infants on the L.C.C. Cuckoo Estate.

ENFIELD. *School.* The Enfield Education Committee has obtained sanction to borrow £64,420 for the erection of the Albay elementary school.

HACKNEY MARSH. *School.* The L.C.C. is to erect, on the Kingsmead Estate, Hackney Marsh, a school to accommodate 396 junior boys, 396 junior girls and 402 infants at a cost of £53,840.

LEWISHAM. *School.* The L.C.C. is to erect a school at Whitefoot Lane, Lewisham, for 396 junior mixed children and 356 infant children at a cost of £36,585.

LEWISHAM. *Houses, etc.* Plans passed by the Lewisham B.C. :—27 houses, Ringmore Rise, Forest Hill, Mr. H. Macintosh ; flats, Addington Grove, Sydenham, Furnsales, Ltd.

LONDON. *Schools.* The L.C.C. has had negotiations as regards the provision of senior Roman Catholic schools in the east and north of London, in the diocese of Westminster, with representatives of one of the two commissions set up by the Roman Catholic authorities to assist the Council in dealing with this problem. As a result the L.C.C. has approved in principle the Roman Catholic Commission's proposals for the reorganization of schools in six districts in north London. The reorganization will involve the building by the Roman Catholic authorities of five new senior mixed schools, and the adaptation of existing buildings so as to provide two senior schools in accordance with the standards laid down by the Council and the Board of Education.

LONDON. *School.* The L.C.C. is to adapt the Dalston County Secondary School building as an elementary school to accommodate 440 senior girls at a cost of £22,375.

SOUTHGATE. *Library.* The Southgate Corporation is to erect a library at Palmers Green, at a cost of £10,000.

WILLESDEN. *School.* The Roman Catholic Church authorities are to provide a new senior school for about 360 senior children in the borough of Willesden.

SOUTHERN COUNTIES

BRIGHTON. *Houses.* The Brighton Corporation is to erect 266 houses on the East Moulsecoomb Estate, at a cost of £101,684.

BRIGHTON. *Pavilion.* The Brighton Corporation is to erect a pavilion at Roedean miniature golf course, at a cost of £1,500.

BRIGHTON. *Pavilion.* The Brighton Corporation is to erect a pavilion in Preston Park, at a cost of £1,850.

BRIGHTON. *Bungalows.* The Brighton Corporation is to erect 16 bungalows on the site of the Old Farm buildings, Manor Farm Estate, at a cost of £4,993.

BRIGHTON. *Entertainment Pavilion, etc.* The Brighton Marine Palace and Pier Co., have decided to demolish the old bathing station on the east side of the pierhead and to deck over the site, and erect on the site a structure to form a one-storey entertainment pavilion, with a sun lounge on the roof.

BRIGHTON. *Bungalows, etc.* Plans passed by the Brighton Corporation : Block of three shops with flats over, Longridge Avenue, Saltdean Estate, Rottingdean, Mr. Claude Evans ; 48 bungalows, between Braybon Avenue and Beechwood Avenue, Withdean Estate East, Summerdale Estates, Ltd. ; 96 bungalows, "The Mount," Saltdean Estate, and sports centre and hotel, Longridge Avenue, Saltdean Estate Co., Ltd.

CHISLEHURST. *School.* The Kent Education Committee is to erect a new school for about 220 children at Willow Grove, Chislehurst.

EASTBOURNE. *Library.* The Eastbourne Corporation is to erect a branch library in Victoria Drive at a cost of £4,000.

FELTHAM. *Shops, etc.* Messrs. P. Chase, Gardener & Co. are to construct shops with flats over in Staines Road, Feltham.

MIDDLESEX. *Housing.* The Middlesex C.C. is to provide a scheme for the rehousing of working-class tenants who will be displaced by the works in connection with the Great West Road extension into London.

MIDLAND COUNTIES

COVENTRY. *Houses.* The Coventry Corporation is to erect 170 houses at Stoke Aldermoor at a cost of £78,994.

WOLVERHAMPTON. *Houses.* The Wolverhampton Corporation has approved the layout for the erection of 886 houses on council estates.

WOLVERHAMPTON. *School Extensions.* The Wolverhampton Education Committee has approved plans for extensions to the Grammar School, at a cost of £4,000.

WOLVERHAMPTON. *Houses, etc.* Plans passed by the Wolverhampton Corporation : 30 houses, Church Road, Oxley, Mr. L. C. Lymer ; 10 houses, Grange Road, Timmins and Davis ; 14 houses, Southfield Grove, Mr. W. Vaughan ; new theatre, Lichfield Street, Wolverhampton News Theatre, Ltd. ; 14 houses, Oxley Moor Road, Brookes and Edwards ; 160 houses, Moreton Estate, Oxley, Mr. E. A. Colman ; 21 houses, Rutland Avenue, A. M. Griffiths and Son, Ltd.

NORTHERN COUNTIES

BOLTON. *Library.* The Bolton Corporation has obtained sanction to borrow £7,100 for the erection of a branch library in the Heaton district.

BRADFORD. *Flats.* Messrs. John Draper and Son are to erect 45 flats in North Park Road, Bradford.

BRADFORD. *Houses.* The Bradford Corporation is to sell land in Heights Lane to Mr. A. E. Hardy for the erection of houses.

BRADFORD. *Grease House.* The Bradford Corporation has approved a scheme for the erection of a new grease house at Esholt sewage works, at a cost of £9,183.

THE BUILDINGS ILLUSTRATED

ST. JOHN'S PARISH HALL, OLD COULSDON, SURREY (pages 709–710). Architect : R. Gardner-Medwin. The general contractors were H. Bacon and Son, and the principal sub-contractors and suppliers included : Standard Steel Co., steel construction ; G. W. Franklin and Son, electric heating and lighting ; Purley Gas Company, gas lighting and cooking ; Williams and Williams, Ltd., standard metal windows ; Venesta, Ltd., standard doors ; Dent and Hellyer, Ltd., sanitary fittings ; Taylor Pearse, Ltd., ironmongery ; Lloyd Wallboard, Ltd., wallboard ; British Trane Co., Ltd., electric vectairs.

DUDLEY ZOO, DUDLEY, WORCS. (pages 717–721). Architects : Messrs. Tecton. The general contractors were Messrs. J. L. Kier & Co., Ltd., and the sub-contractors and suppliers included : Permanite, Ltd., asphalt, special roofings, roofing felt ; Pilkington Bros., Ltd., armourplate glass in penguin pool ; Williams and Williams, Ltd., patent glazing, casements ; T. and W. Ide, Ltd., patent glazing ; Earl of Dudley's Coneygree Brick Works, bricks, Staffordshire blues ; Sam. Bysouth and Sons, stone ; Midland Tile Co., tiles ; Armstrong Cork Co., Ltd., patent flooring, Armstrong rubber in cages, Monopavers in stables ; Inerstol Co., Ltd., waterproofing materials ; Thos. Potterton & Co., Ltd., central heating (gas) in elephant house and bird house ; Dudley, Brierley Hill and District Gas Co., gas fixtures and fittings ; Ellis and Ward, electric wiring ; Oswald Hollmann, electric light fixtures ; D. Wiseman and Son, plumbing ; Shanks & Co., Ltd., sanitary fittings ; Central Perivale, Ltd., casements and joinery ; F. A. Norris & Co., Ltd., iron staircases ; Jas. Couper & Co., Ltd., metal doors ; Thomas and Wilson, Ltd., plaster ; Darlington Fencing Co., fencing ; Hill and Smith, Ltd., entrance turnstiles, special fencing, guard rails and gates throughout ; D. Burkle and Son, Ltd., joinery ; Marbello and Durus, Ltd., terrazzo ; C. and T. Painters, Ltd., painting ; B.R.C. Eng. Co., Ltd., cages (B.R.C. Weldmesh) ; Mollo and Egan, Ltd., photographic panels in restaurant ; E. Pollard & Co., Ltd., counter shelving ; Alfred Herbert, Ltd., patent drinking bowls in pony's stable ; G. Brady & Co., Ltd., hand lifts ; T. W. Edwards, Ltd., water supply ; Lee, Howe & Co., water supply ; Parker, Winder and Achurch, Ltd., drinking fountains ; Bloxham and Wood, signs ; John H. Brough & Co., Ltd., Leaderflush flush doors.

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	ABERDARE ...	S. Wales & M.	1 7	1 2½
A	Aberdeen ...	Scotland	1 7	1 2½
A_1	Abergavenny ...	S. Wales & M.	1 6½	1 2
A_2	Abingdon ...	S. Counties	1 5½	1 1½
A	Accrington ...	N.W. Counties	1 7	1 2½
A_2	Addlestone ...	S. Counties	1 6	1 1½
A	Adlington ...	N.W. Counties	1 7	1 2½
A	Airdrie ...	Scotland	*1 7	1 2½
C	Aldeburgh ...	E. Counties	1 3	0 11½
A	Altrincham ...	N.W. Counties	1 7	1 2½
B_2	Appleby ...	N.W. Counties	1 3½	0 11½
A	Ashton-under-Lyne	N.W. Counties	1 7	1 2½
B	Aylesbury ...	S. Counties	1 5	1 0½
B	BANBURY ...	S. Counties	1 5	1 0½
B_1	Bangor ...	N.W. Counties	1 4½	1 0½
A_2	Barnard Castle	N.E. Coast	1 5½	1 1½
A	Barnsley ...	Yorkshire	1 7	1 2½
B	Barnstaple ...	S.W. Counties	1 5	1 0½
A	Barrow ...	N.W. Counties	1 7	1 2½
A	Barry ...	S. Wales & M.	1 7	1 2½
B	Basingstoke ...	S.W. Counties	1 5	1 0½
A_2	Bath	S.W. Counties	1 6	1 1½
A	Batley ...	Yorkshire	1 7	1 2½
A_2	Bedford ...	E. Counties	1 6	1 1½
A_2	Berwick-on-Tweed	N.E. Coast	1 6	1 1½
A_2	Bewdley ...	Mid. Counties	1 6	1 1½
B	Bicester ...	S. Counties	1 5	1 0½
	Birkenhead ...	N.W. Counties	*1 8	1 3
A	Birmingham ...	Mid. Counties	1 7	1 2½
A_1	Bishop Auckland	N.E. Coast	1 6½	1 2
A	Blackburn ...	N.W. Counties	1 7	1 2½
A	Blackpool ...	N.W. Counties	1 7	1 2½
A	Blyth	N.E. Coast	1 7	1 2½
B	Bognor ...	S. Counties	1 5	1 0½
A	Bolton ...	N.W. Counties	1 7	1 2½
A_2	Boston ...	Mid. Counties	1 6½	1 1½
A_2	Bournemouth...	S. Counties	1 6	1 1½
B_2	Bovey Tracey	S.W. Counties	1 4	1 0
A	Bradford ...	Yorkshire	1 7	1 2½
A_1	Brentwood ...	E. Counties	1 6½	1 2
A	Bridgend ...	S. Wales & M.	1 7	1 2½
B	Bridgwater ...	S.W. Counties	1 5	1 0½
A_1	Bridlington ...	Yorkshire	1 6½	1 2
A	Brighouse ...	Yorkshire	1 7	1 2½
A	Brighton ...	S. Counties	1 6	1 2½
A	Bristol ...	S.W. Counties	1 7	1 2½
B	Brixham ...	S.W. Counties	1 5	1 0½
A	Bromsgrove ...	Mid. Counties	1 7	1 2½
B	Bromyard ...	Mid. Counties	1 5	1 0½
A	Burnley ...	N.W. Counties	1 7	1 2½
A	Burslem ...	Mid. Counties	1 7	1 2½
A	Burton-on-Trent	Mid. Counties	1 7	1 2½
A	Bury	N.W. Counties	1 7	1 2½
A_1	Buxton ...	N.W. Counties	1 6½	1 2
A_2	CAMBRIDGE	E. Counties	1 6½	1 2
B_1	Canterbury ...	S. Counties	1 4½	1 0½
A	Cardiff ...	S. Wales & M.	1 7	1 2½
A	Carlisle ...	N.W. Counties	1 7	1 2½
B	Carmarthen ...	S. Wales & M.	1 5	1 0½
B	Carnarvon ...	N.W. Counties	1 5	1 0½
A_1	Carnforth ...	N.W. Counties	1 7	1 2½
A	Castleford ...	Yorkshire	1 7	1 2½
A_2	Chatham ...	S. Counties	1 5½	1 1½
A_2	Chelmsford ...	E. Counties	1 5½	1 1½
A_2	Cheltenham ...	S.W. Counties	1 5½	1 1½
A	Chester ...	N.W. Counties	1 7	1 2½
A_2	Chesterfield ...	Mid. Counties	1 7	1 2½
B	Chichester ...	S. Counties	1 5	1 0½
A	Chorley ...	N.W. Counties	1 7	1 2½
B_1	Cirencester ...	S. Counties	1 4½	1 0½
A	Clitheroe ...	N.W. Counties	1 7	1 2½
A	Clydebank ...	Scotland	1 7	1 2½
A	Coalville ...	Mid. Counties	1 7	1 2½
A_2	Colchester ...	E. Counties	1 6	1 1½
A_1	Colne	N.W. Counties	1 6½	1 2
A_2	Colwyn Bay ...	N.W. Counties	1 6	1 1½
A	Consett ...	N.E. Coast	1 6½	1 2
A_2	Conway ...	N.W. Counties	1 6	1 1½
A	Coventry ...	Mid. Counties	1 7	1 2½
A_2	Crewe	N.W. Counties	1 6	1 1½
A_2	Cumberland ...	N.W. Counties	1 6½	1 1½
A	DARLINGTON	N.E. Coast	1 7	1 2½
A	Darwen ...	N.W. Counties	1 7	1 2½
B_1	Deal	S. Counties	1 4½	1 0½
A_2	Denbigh ...	N.W. Counties	1 5½	1 1½
A	Derby	Mid. Counties	1 7	1 2½
A	Dewsbury ...	Yorkshire	1 7	1 2½
B	Didcot ...	S. Counties	1 5	1 0½
A	Doncaster ...	Yorkshire	1 7	1 2½
B_2	Dorchester ...	S.W. Counties	1 4½	1 0½
A_2	Driffield ...	Yorkshire	1 5½	1 1½
A_2	Droitwich ...	Mid. Counties	1 6	1 1½
A	Dudley ...	Mid. Counties	1 7	1 2½
A_2	Dumfries ...	Scotland	1 6	1 1½
A	Dundee ...	Scotland	1 7	1 2½
A	Durham ...	N.E. Coast	1 7	1 2½
A_2	EASTBOURNE	S. Counties	1 6	1 1½
A_1	Ebbw Vale ...	S. Wales & M.	1 6½	1 2
A	Edinburgh ...	Scotland	1 7	1 2½
A_2	Exeter ...	S.W. Counties	*1 6	1 1½
B	Exmouth ...	S.W. Counties	1 5	1 0½
A_2	FELIXSTOWE	E. Counties	1 5½	1 1½
A_2	Filey	Yorkshire	1 5½	1 1½
A	Fleetwood ...	N.W. Counties	1 7	1 2½
B_1	Folkestone ...	S. Counties	1 4½	1 0½
A	Frodsham ...	N.W. Counties	1 7	1 2
B_2	Frome ...	S.W. Counties	1 4	1 0
A	GATESHEAD	N.E. Coast	1 7	1 2½
B	Gillingham ...	S. Counties	1 5	1 0½
A_1	Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 6½	1 2
A	Glasgow ...	Scotland	1 7	1 2½
A_2	Gloucester ...	S.W. Counties	1 6	1 1½
A_2	Goole	Yorkshire	1 6	1 1½
A_2	Gosport ...	S. Counties	1 6	1 1½
A_2	Grantham ...	Mid. Counties	1 5½	1 1
A_1	Gravesend ...	S. Counties	1 6½	1 2
A	Greenock ...	Scotland	*1 7	1 2
A	Grimsby ...	Mid. Counties	1 7	1 2
B	Guildford ...	S. Counties	1 5	1 0
A	HALIFAX ...	Yorkshire	1 7	1 2½
A	Hanley ...	Mid. Counties	1 7	1 2½
A	Harrogate ...	Yorkshire	1 7	1 2½
A	Hartlepools ...	N.E. Coast	1 7	1 2½
B	Harwich ...	E. Counties	1 5	1 0½
B	Hastings ...	S. Counties	1 5	1 0½
A_2	Hatfield ...	S. Counties	1 6	1 1½
B	Hereford ...	S.W. Counties	1 5	1 0½
A_2	Hertford ...	E. Counties	1 6	1 1½
A	Heysham ...	N.W. Counties	1 7	1 2½
A	Howden ...	N.E. Coast	1 7	1 2½
A	Huddersfield ...	Yorkshire	1 7	1 2½
A	Hull	Yorkshire	1 7	1 2½
A	ILKLEY ...	Yorkshire	1 7	1 2½
A	Immingham ...	Mid. Counties	1 7	1 2½
A_2	Ipswich ...	E. Counties	1 6	1 1½
B_2	Isle of Wight ...	S. Counties	1 4	1 0
A	JARROW ...	N.E. Coast	1 7	1 2½
A	KEIGHLEY ...	Yorkshire	1 7	1 2½
A_2	Kendal ...	N.W. Counties	1 5½	1 1½
A_2	Keswick ...	N.W. Counties	1 5½	1 1½
A_1	Kettering ...	Mid. Counties	1 6½	1 2
A_2	Kidderminster	Mid. Counties	1 6	1 1½
B_1	King's Lynn ...	E. Counties	1 4½	1 0½
A	LANCASTER ...	N.W. Counties	1 7	1 2½
A_1	Leamington ...	Mid. Counties	1 6½	1 2
A	Leeds	Yorkshire	1 7	1 2½
A	Leek	Mid. Counties	1 7	1 2½
A	Leicester ...	Mid. Counties	1 7	1 2½
A	Leigh	N.W. Counties	1 7	1 2½
B	Lewes	S. Counties	1 5	1 0½
A_2	Lichfield ...	Mid. Counties	1 6	1 1½
A	Lincoln ...	Mid. Counties	1 7	1 2½
	Liverpool ...	N.W. Counties	*1 8½	1 3½
A_2	Llandudno ...	N.W. Counties	1 6	1 1½
A	Llanelly ...	S. Wales & M.	1 7	1 2½
	London (12-miles radius)		1 8½	1 3½
	Do. (12-15 miles radius)		1 8	1 3
A	Long Eaton ...	Mid. Counties	1 7	1 2½
A	Loughborough ...	Mid. Counties	1 7	1 2½
A_1	Luton	E. Counties	1 6½	1 2
A	Lytham ...	N.W. Counties	1 7	1 2½
A_1	MACCLESFIELD	N.W. Counties	1 6½	1 2
A_2	Maidstone ...	S. Counties	1 5½	1 1½
A_2	Malvern ...	Mid. Counties	1 5½	1 1½
A	Manchester ...	N.W. Counties	1 7	1 2½
A	Mansfield ...	Mid. Counties	1 7	1 2½
B_1	Margate ...	S. Counties	1 4½	1 0½
A_2	Matlock ...	Mid. Counties	1 5½	1 1½
A_1	Merthyr ...	S. Wales & M.	1 6½	1 2
A	Middlesbrough	N.E. Coast	1 7	1 2½
A_2	Middlewich ...	N.W. Counties	1 6	1 1½
B_2	Minehead ...	S.W. Counties	1 4	1 0
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 4	1 0
A	Morecambe ...	N.W. Counties	1 7	1 2½
A_2	NANTWICH ...	N.W. Counties	1 6	1 1½
A	Neath	S. Wales & M.	1 7	1 2½
A	Nelson ...	N.W. Counties	1 7	1 2½
A	Newcastle ...	N.E. Coast	1 7	1 2½
A	Newport ...	S. Wales & M.	1 7	1 2½
A	Normanton ...	Yorkshire	1 7	1 2½
A	Northampton	Mid. Counties	1 7	1 2½
A	North Shields...	N.E. Coast	1 7	1 2½
A	North Staffs ...	Mid. Counties	1 7	1 2½
A_1	Norwich ...	E. Counties	1 6½	1 2
A	Nottingham ...	Mid. Counties	1 7	1 2½
A	Nuneaton ...	Mid. Counties	1 7	1 2½
A_2	OAKHAM ...	Mid. Counties	1 5½	1 1½
A	Oldham ...	N.W. Counties	1 7	1 2½
A_2	Oswestry ...	N.W. Counties	1 5½	1 1½
A_1	Oxford ...	S. Counties	1 6½	1 2
A	PAISLEY ...	Scotland	*1 7	1 2
B_2	Pembroke ...	S. Wales & M.	1 3½	0 11½
A	Perth	Scotland	*1 7	1 2½
A_1	Peterborough ...	E. Counties	1 6½	1 2
A	Plymouth ...	S.W. Counties	*1 7	1 2½
A	Pontefract ...	Yorkshire	1 7	1 2½
A_1	Pontypridd ...	S. Wales & M.	1 6½	1 2
A_2	Portsmouth ...	S. Counties	1 6	1 1½
A	Preston ...	N.W. Counties	1 7	1 2½
A	QUEENSFERRY	N.W. Counties	1 7	1 2½
A_2	READING ...	S. Counties	1 6½	1 2
B	Reigate ...	S. Counties	1 5½	1 1½
A_2	Retford ...	Mid. Counties	1 5½	1 1½
A_1	Rhondda Valley	S. Wales & M.	1 6½	1 2
A_2	Ripon	Yorkshire	1 5½	1 1½
A	Rochdale ...	N.W. Counties	1 7	1 2½
B	Rochester ...	S. Counties	1 5	1 0½
A_1	Ruabon ...	N.W. Counties	1 6½	1 2
A	Rugby ...	Mid. Counties	1 7	1 2½
A_2	Rugeley ...	Mid. Counties	1 6	1 1½
A	Runcorn ...	N.W. Counties	1 7	1 2½
A_1	ST. ALBANS ...	E. Counties	1 6½	1 2
A	St. Helens ...	N.W. Counties	1 7	1 2½
B_2	Salisbury ...	S.W. Counties	1 3½	0 11½
A_1	Scarborough ...	Yorkshire	1 6½	1 2
A	Scunthorpe ...	Mid. Counties	1 7	1 2½
A	Sheffield ...	Yorkshire	1 7	1 2½
A	Shipley ...	Yorkshire	1 7	1 2½
A_2	Shrewsbury ...	Mid. Counties	1 6	1 1½
A_2	Skipton ...	Yorkshire	1 6	1 1½
A_2	Slough ...	S. Counties	1 6	1 1½
A_1	Solihull ...	Mid. Counties	1 6½	1 2
A_2	Southampton...	S. Counties	1 6	1 1½
A_1	Southend-on-Sea	E. Counties	1 6½	1 2
A	Southport ...	N.W. Counties	1 7	1 2½
A	S. Shields ...	N.E. Coast	1 7	1 2½
A_1	Stafford ...	Mid. Counties	1 6½	1 2
A	Stirling ...	Scotland	1 7½	1 2½
A	Stockport ...	N.W. Counties	1 7	1 2½
A	Stockton-on-Tees	N.E. Coast	1 7	1 2½
A	Stoke-on-Trent	Mid. Counties	1 7	1 2½
B	Stroud ...	S.W. Counties	1 5	1 0½
A	Sunderland ...	N.E. Coast	1 7	1 2½
A	Swansea ...	S. Wales & M.	1 7	1 2½
A_2	Swindon ...	S.W. Counties	1 5½	1 1½
A_1	TAMWORTH ...	N.W. Counties	1 6½	1 2
B	Taunton ...	S.W. Counties	1 5	1 0½
A	Teesside Dist....	N.E. Counties	1 7	1 2½
A_2	Teignmouth ...	S.W. Coast	1 6	1 1½
A	Todmorden ...	Yorkshire	1 7	1 2½
A_1	Torquay ...	S.W. Counties	1 6½	1 2
B_2	Truro	S.W. Counties	1 4	1 0
A_2	Tunbridge Wells	S. Counties	1 5½	1 1½
A	Tunstall	Mid. Counties	1 7	1 2½
A	Tyne District....	N.E. Coast	1 7	1 2½
A	WAKEFIELD	Yorkshire	1 7	1 2½
A	Walsall ...	Mid. Counties	1 7	1 2½
A	Warrington ...	N.W. Counties	1 7	1 2½
A_1	Warwick ...	Mid. Counties	1 6½	1 2
A	Wellingborough	Mid. Counties	1 6½	1 2
A	West Bromwich	Mid. Counties	1 7	1 2½
A_2	Weston-s.-Mare	S.W. Counties	1 6	1 1½
A	Whitby ...	Yorkshire	1 6	1 1½
A	Widnes ...	N.W. Counties	1 7	1 2½
A	Wigan ...	N.W. Counties	1 7	1 2½
B	Winchester ...	S. Counties	1 5	1 0½
A_2	Windsor ...	S. Counties	1 6	1 1½
A	Wolverhampton	Mid. Counties	1 7	1 2½
A_2	Worcester ...	Mid. Counties	1 6	1 1½
A_2	Worksop ...	Yorkshire	1 5½	1 1½
A_1	Wrexham ...	N.W. Counties	1 6½	1 2
A_2	Wycombe ...	S. Counties	1 5½	1 1½
B	YARMOUTH ...	E. Counties	1 5	1 0½
B	Yeovil ...	S.W. Counties	1 5	1 0½
A	York	Yorkshire	1 7	1 2½

* 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. The rates of wages have been revised consequent upon the increase in wages which came into operation on February 1, together with all revisions following authorised annual regradings.

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 8½
Carpenter . . . . . ,,	1 8½
Joiner . . . . . ,,	1 8½
Machinist . . . . . ,,	1 9½
Mason (Banker) . . . . . ,,	1 8½
,, (Fixer) . . . . . ,,	1 9½
Plumber . . . . . ,,	1 8½
Painter . . . . . ,,	1 7½
Paperhanger . . . . . ,,	1 7½
Glazier . . . . . ,,	1 8½
Slater . . . . . ,,	1 8½
Scaffolder . . . . . ,,	1 4½
Timberman . . . . . ,,	1 4½
Navvy . . . . . ,,	1 3½
General Labourer . . . . . ,,	1 3½
Lorryman . . . . . ,,	1 6½
Crane Driver . . . . . ,,	1 7½
Watchman . . . . . per week	2 10 0

MATERIALS

EXCAVATOR AND CONCRETOR

	£ s. d.
Grey Stone Lime . . . . . per ton	2 2 0
Blue Lias Lime . . . . . ,,	1 18 6
Hydrated Lime . . . . . ,,	2 6 0
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . . ,,	1 19 0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2 5 0
White Portland Cement, in 1-ton lots ,,	8 15 0
Thames Ballast . . . . . per Y.C.	6 6
¾" Crushed Ballast . . . . . ,,	7 0
Building Sand . . . . . ,,	7 6
Washed Sand . . . . . ,,	8 6
2" Broken Brick . . . . . ,,	8 0
¾" ,, ,, ... ,,	10 3
Pan Breeze . . . . . ,,	6 6
Coke Breeze . . . . . ,,	8 9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s. d.	6" s. 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.	2 3	3 8
Bends . . . . each	6 4	13 1
Inspection bends . . ,,	11 5	14 4
Single junctions . . ,,	11 2	22 10
Double junctions . . ,,	17 2	30 9
Lead Wool . . . . lb.	6	—
Gaskin . . . . . ,,	5	—

BRICKLAYER

	£ s. d.
Flettons . . . . . per M.	2 12 0
Grooved do. . . . . ,,	2 14 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 14 0
,, Wirecuts . . . ,,	7 12 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 . . ,,	4 0 0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:	
Stretchers . . . . . ,,	21 0 0
Headers . . . . . ,,	20 10 0
Bullnose . . . . . ,,	27 10 0
Double Stretchers . . . ,,	29 10 0
Double Headers . . . . ,,	26 10 0
Glazed Second Quality, *Less* . ,,	1 0 0
,, Buffs and Creams, *Add* . ,,	2 0 0
,, Other Colours . . . ,,	5 10 0
2" Breeze Partition Blocks . . per Y.S.	1 7
2½" ,, ,, ,, . . . ,,	1 10
3" ,, ,, ,, . . . ,,	2 1
4" ,, ,, ,, . . . ,,	2 6

MASON

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

SLATER AND TILER

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

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

CARPENTER AND JOINER

	£ s. d.
Good carcassing timber . . F.C. 2s. 7d.–	2 10
Birch . . . . as 1" F.S.	9
Deal, Joiner's . . . . ,, ,,	5
,, ,, 2nds . . . ,, ,,	4
Mahogany, Honduras . . ,, ,,	1 3
,, African . . ,, ,,	1 1
,, Cuban . . ,, ,,	2 6
Oak, plain American . . ,, ,,	1 0
,, Figured ,, . . ,, ,,	1 3
,, plain Japanese . . ,, ,,	1 2
,, Figured ,, . . ,, ,,	1 5
,, Austrian wainscot . . ,, ,,	1 6
,, English . . . ,, ,,	1 11
Pine, Yellow . . . . ,, ,,	1 0
,, Oregon . . . ,, ,,	4
,, British Columbian . . ,, ,,	4
Teak, Moulmein . . . ,, ,,	1 3
,, Burma . . . ,, ,,	1 2
Walnut, American . . . ,, ,,	2 3
,, French . . . ,, ,,	2 3
Whitewood, American . . ,, ,,	1 1
Deal floorings, ¾" . . . Sq.	18 6
,, 1" . . . ,,	1 1 6
,, 1¼" . . . ,,	1 2 0
,, 1½" . . . ,,	1 5 0
,, 1¾" . . . ,,	1 10 0
Deal matchings, ¾" . . . ,,	14 0
,, 1" . . . ,,	15 6
,, 1¼" . . . ,,	1 4 0
Rough boarding, ¾" . . . ,,	16 0
,, 1" . . . ,,	18 0
,, 1¼" . . . ,,	1 6 0

Plywood, per ft. sup.:

Thickness	¼"			⅜"			½"			⅝"		
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	–	1/–	9	–

Scotch glue . . . . . lb.	d. 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"	½"	1"	1½"	2"
	d.	d.	d.	d.	d.
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 . . .	66⅔	Galvanized gas .	56⅔
Water . . .	61⅔	,, water .	51⅔
Steam . . .	58⅓	,, steam .	46⅔
	FITTINGS		
Gas . . .	57½	Galvanized gas .	48⅓
Water . . .	53⅓	,, water .	46⅔
Steam . . .	48⅓	,, steam .	41⅔

	s. d.
Rolled steel joists cut to length . . cwt.	15 6
Mild steel reinforcing rods, ¾" . . . ,,	18 0
,, ,, ,, ½" . . . ,,	17 9
,, ,, ,, ⅜" . . . ,,	17 6

SMITH AND FOUNDER—*continued*

	s. d.
Mild steel reinforcing rods, ¼" . . . cwt.	17 6
,, ,, ,, ⅛" . . . ,,	17 6
,, ,, ,, 1" . . . ,,	17 6
,, ,, ,, 1¼" . . . ,,	17 6
,, ,, ,, 1½" . . . ,,	17 6

Cast-iron rain-water pipes of ordinary thickness metal . F.R.	3" s. d. 1 0	4" s. d. 1 3½
Shoes . . . . each	2 0	3 0
Anti-splash shoes . . ,,	4 6	8 0
Boots . . . . ,,	3 0	4 0
Bends . . . . ,,	2 7	3 9
,, with access door . ,,	—	6 3
Heads . . . . ,,	4 0	5 0
Swan-necks up to 9" offsets . ,,	3 9	6 0
Plinth bends, 4½" to 6" ,,	3 9	5 3

Half-round rain-water gutters of ordinary thickness metal . F.R.	5	6
Stop ends . . . . each	6	6
Angles . . . . ,,	1 7	1 11
Obtuse angles . . . ,,	2 0	2 6
Outlets . . . . ,,	1 9	2 3

PLUMBER

	3"	4"	6"
Lead, milled sheets . . . cwt.	1 7 3		
,, drawn pipes . . . ,,	1 6 9		
,, soil pipes . . . ,,	1 9 9		
,, scrap . . . ,,	18 0		
Solder, plumbers' . . . lb.	1 1½		
,, fine do. . . . ,,	1 4		
Copper, sheet . . . ,,	1 0½		
,, tubes . . . ,,	1 2½		
L.C.C. soil and waste pipes:			
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 0 0
Plaster, coarse . . . ,,	2 15 0
,, fine . . . ,,	4 7 6
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, 24 oz., squares n/e 2 ft. s. F.S.		2½
,, ,, 26 oz. ,, ,, ,, ,,		3½
Flemish, Arctic, Figures (white)* . ,,		7½
Blazoned glasses . . . ,,		2 6
Reeded: Cross Reeded . . . ,,		11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite ,,		£½
Crown sheet glass (n/e 12" × 10") . ,,		2 0
Flashed opals (white and coloured) . ,,	1 0 and	2 0
¼" rough cast; rolled plate . . ,,		6
¼" wired cast; wired rolled . . ,,		10½
¼" Georgian wired cast . . ,,		11½
¼" Polished plate, n/e 1 ft. . . ,,	†1 0 to	‡1 3
,, ,, 2 . . . ,,	†1 4 ,,	‡1 6
,, ,, 4 . . . ,,	†2 6 ,,	‡2 9
,, ,, 8 . . . ,,	†2 11 ,,	‡3 4
,, ,, 20 . . . ,,	†3 1 ,,	‡3 9
,, ,, 45 . . . ,,	†3 3 ,,	‡4 0
,, ,, 100 . . . ,,	†4 0 ,,	‡4 10
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 17 9
Linseed oil . . . . . gall.	3 2
Boiled oil . . . . . ,,	3 5
Turpentine . . . . . ,,	3 9
Patent knotting . . . . . ,,	14 0
Distemper, washable . . . . cwt.	2 6 0
,, ordinary . . . . ,,	2 0 0
Whitening . . . . . ,,	4 0
Size, double . . . . . firkin	3 0
Copal varnish . . . . . gall.	13 0
Flat varnish . . . . . ,,	14 0
Outside varnish . . . . . ,,	16 0
White enamel . . . . . ,,	1 15 0
Ready mixed paint . . . . ,,	13 6
Brunswick black . . . . . ,,	7 6

CURRENT PRICES FOR MEASURED WORK

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

EXCAVATOR AND CONCRETOR

		s.	d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2	9
" to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8	6
" to form basement n/e 5′ 0″ and cart away	"	9	0
" " 10′ 0″ deep and cart away	"	9	6
" " 15′ 0″ deep and cart away	"	10	0
If in stiff clay add	"		6
If in underpinning "	"	4	0
Planking and strutting to sides of excavation	F.S.	1	0
" " to pier holes	"		5
" " to trenches	"		5
" " extra, only if left in	"		3
Hardcore, filled in and rammed	Y.C.	10	0
Portland cement concrete in foundations (6–1)	"	1 6	6
" " (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	0
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	5	9	8	3
Extra, only for bends (cast iron)	Each	12	3	18	4

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
" rising on old walls	"	2	0	0
" underpinning	"	5	10	0
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facings and pointing	"	1	4	
" " " glazed brick facings and pointing	"	3	6	
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"	1	1	

ASPHALTER

		s.	d.
½″ Horizontal dampcourse	Y.S.	4	9
½″ Vertical dampcourse	"	7	9
½″ paving or flat	"	6	3
1″ paving or flat	"	7	6
1″ × 6″ skirting	F.R.	1	0
Angle fillet	"		2½
Rounded angle	"		2½
Cesspools	Each	5	6

MASON

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

SLATER AND TILER

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

CARPENTER AND JOINER

		£	s.	d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2	2	6
Shuttering to sides and soffits of beams	F.S.			7
" to stanchions	"			7
" to staircases	"		1	6
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
¾″ deal sawn boarding and fixing to joists	Sqr.	1	14	6
1″ " " " " "	"	1	17	6
1½″ " " " "	"	2	3	0
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
1½″ " " " " "	"		1	6
2″ deal wrought rounded roll	F.R.			8
1″ deal grooved and tongued flooring, laid complete ncluding cleaning ff	Sqr.	2	1	0
1½″ do.	"	2	10	0
1¾″ do.	"	2	17	0
1″ deal moulded skirting fixed on, and including grounds plugged to wall	F.S.		1	6
1½″ do.	"		1	9

CARPENTER AND JOINER—*continued*

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

SMITH AND FOUNDER

		s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	18	6
Riveted plate or compound girders, and hoisting and fixing in position	"	1	6
Do., stanchions with riveted caps and bases and do.	"	1	2
Mild steel bar reinforcement, ½″ and up, bent and fixed complete	"	1	4
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

PLUMBER

		£	s.	d.
Milled lead and labour in flats	cwt.	1	18	0
Do. in flashings	"	2	1	6
Do. in covering to turrets	"	2	7	0
Do. in soakers	"	1	12	9
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close " "	"			4

		½″ s.	d.	¾″ s.	d.	1″ s.	d.	1¼″ s.	d.	2″ s.	d.	4″ s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	1	2	1	4	1	8½	2	7	3	6	—	
Do. soil pipe and fixing with cast lead tacks		—		—		—		—		—		7	3
Extra, only to bends	Each	—		—		—		—		2	3	7	6
Do. to stop ends	"	6½		8		9		11		1	0	—	
Boiler screws and unions		3	3	3	9	5	0	8	0	—		—	
Lead traps		—		—		—		8	0	11	6	—	
Screw down bib valves	"	6	9	9	6	11	0	—		—		—	
Do. stop cocks	"	7	0	9	6	12	6	—		—		—	
4″ cast-iron ½-rd. gutter and fixing										F.R.		1	0
Extra, only stop ends										Each		1	0
Do. angles										"		1	6
Do. outlets										"		2	9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on										F.R.		1	7
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 under on walls	"	1	2½
Render, refloat and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement angle and arris	F.R.		6
Arris	"		1½
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1″ girth	"		1½
1″ granolithic pavings	Y.S.	3	6
1½″ " " " " "	"	4	6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	"	17	6
9″ × 3″ " " " " "	"	1 2	6
Extra, only for small quadrant angle	F.R.		8

GLAZIER

		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		6½
26 oz. do. and do.	"		7½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	8
Glazing only, British polished plate	"		7
Extra, only if in beds	"		2
Washleather	F.R.		4

PAINTER

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