THE ARCHITECTS' JOURNAL

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WEALTH AND ARCHITECTURE

Those who are keenest in their advocacy of a changed social order; a social order in which, as they fancy, the good things of the earth will be more equally distributed amongst its inhabitants, are always a little hard put to it when questioned about the production of works of art under such conditions. Architecture seems, on the face of it, to have the most assured position under such a new regimen, on account of mankind's need for buildings, but more careful thought throws doubt on this assumption.

Some months ago Mr. Birnstingl, in an article on the work of Mr. Oliver Hill, wrote " I do not want to offend any political susceptibilities, but, if under the Socialist state there is to be an even distribution of wealth, then great architecture must surely die." The writer saves himself by the conditional clause. Socialists themselves scarcely anticipate an even distribution of wealth; they do, however, anticipate, we fancy, a less unequal distribution than that which exists to-day. How is this likely to affect architecture?

Every commodity can be viewed from a multitude of aspects. To the landscape painter the pig may be an object of great beauty, to the butcher he is so much potential wealth, to the Semite an object of loathing and disgust, and so on. And so with buildings. From one aspect a great building is an accretion of wealth; a vast sum of money deposited within a small area; the negation, in fact, of evenly distributed wealth, so that, assuming the wealth to be distributed it has to be brought together again in order to produce a great building. At the first glance there may seem no obstacle to this. Like taking cream from milk, a thin layer is taken off the comparatively evenly distributed wealth, and this again is made into little pats (like butter), which represent the great buildings. It is as easy to take a thin layer of top soil (our metaphor is still agricultural) off a large area as to take the tops off several mole hills. Is it? Can these analogies be applied to the hard world of economics? The more even the distribution of wealth the fewer are the people who have a surplus, or what they consider to be a surplus.

The advocate of the new regimen will say that the great building of the future is to be the municipal or communal building. Yet, save by the great municipal building is the outward and visible sign of a rich municipality, of unevenly distributed wealth, and that if all municipalities were of equal substance each might afford to have a municipal building while none could afford to have a *great* municipal building. Moreover, with an even, or more even—let us be precise—wealth distribution, the rateable value of all towns would tend to be lower. For it is well known that the rateable value is greatest where the wealth accumulates, although the rateable need may be greatest where the wealth is distributed. Then we find high rateable values and low rates in rich districts, and low rateable values and high rates in poor districts. In fact, if every one had an income of a few hundreds a year, no one would feel that they had any surplus to spend on great buildings, and no government could stay in power which attempted to tax them for the purpose, unless, maybe, it were a Fascist Government, and then we should substitute a harsher word for the word tax.

And if there is no likelihood that the new arrangement will produce great communal buildings, what chance is there that it will produce any great buildings? With a State monopoly of industry, or with a penalization of the industrious, the competitive incentive, which is largely responsible for great commercial buildings, will cease to exist. As for private dwellings, no one with an income of a few hundreds can afford to have a home which can be described as great architecture, for, as Mr. Birnstingl pointed out in the article from which we have already quoted, size is a necessary quality of a great work of art. In *Inland Far*, Mr. Clifford Bax refers to the " ridiculous doctrine that the size of a work has no bearing upon its merit, that a cameo is an achievement as noteworthy as a cathedral." And again, " yet even in our time, when the simplest propositions are challenged, few people would deny that it is the work of a stronger and rarer mind to sustain a design throughout a hundred cantos than for the duration of an eight-line lyric." Similarly it is the mark of a stronger and rarer mind to sustain a design comprising suites of reception rooms, galleries, staircases, courtyards, than one comprising two sitting-rooms and four bedrooms, and this is the most that the domestic architect of the future can ever hope to be called upon to do, unless it be to design unadorned blocks of small flats.

And so it would seem that if the change, which is at present advocated by so many, ever comes about, " great architecture must surely die," and so, too, presumably, must the race of great architects. However, this grim prospect does not lie in the immediate future; and in the meantime let us hope for a continuance of a slight (for we are not without humanitarian weaknesses) inequality in wealth distribution, so that the opportunities for the design and erection of great buildings may still survive.

NEWS AND TOPICS

ECONOMY IN THE USE OF STEEL—THE ROME MEN'S WORK—THE CINEMA AS ARCHITECTURAL ART—THE EQUIPMENT OF THE CINEMA—THE PRESERVATION OF FRENCH BUILDINGS —THE LATE DERWENT WOOD AT THE R.A.

I WAS surprised and delighted to find that in his Presidential address given before the Institution of Structural Engineers, Mr. H. J. Deane had quite a lot to say about those very old friends, brick and stone and timber. It is true that in countries better provided with the softer timbers than our own, the composite wooden truss has made enormous progress of late and has won an extensive popularity. But Mr. Deane proved himself a vigorous advocate of Empire timbers, and he laid considerable emphasis on the researches into the decay of stone and timber that are being pursued by some of our most eminent chemists to-day.

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The greater part of his address was, of course, concerned with concrete and steel. I was particularly struck by his references to the enormous advances that have been made in the tensile strengths of steel and cement. But these advances have not followed the same lines for the two materials. Thus we were told how the lowest average tensile strength of the structural members of the new Sydney Harbour Bridge are much the same as in those of the Forth Bridge, a typical product of the last century. But in the Sydney Bridge there are members made of special carbon steel and various high quality alloy steels which are able to resist a stress many times greater than any member in the Forth Bridge. Thus steels of various strengths are produced to discharge various tasks. In the manufacture of cement there is no such gradation, and Mr. Deane holds that a good deal of money is wasted by making massed concrete with cement that is too good for the job. It is an excellent thing that the tensile strength of cement should have been trebled in a quarter of a century, but the inferior kinds have, according to Mr. Deane, their legitimate place in modern engineering, and he looks forward to a suitable specification for a lower-grade product which would enable a saving of anything between £500 and £1,000 to be made, for example, on every mile of road constructed with it.

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Tucked away in a well-lit but inaccessible gallery of the Imperial Institute, South Kensington, a selection of work done since 1913 by Rome Scholars and Jarvis Students arouses our admiration and critical faculties alike. The admiration must be given to the work of the scholars and students and the criticism may be directed at the aim of the institution. I say "may" because it is still questionable whether the whole idea—borrowed, let it be remembered, from the French, who, in their turn, set it afoot over a century ago—is, or is not, the most suitable to bring about that polish, that relative finality in an architect's mental equipment which our time and its problems demand. Be that as it may, the application and skill shown by the recipients of these coveted rewards are remarkable.

From the retrospective character of the present exhibition, one gathers the impression that, whereas the first two or three years gave us brilliant draughtsmanship allied to a scholarship lightly carried, the last have, with one or two exceptions, reversed the process. Throughout the period, however, valuable researches were carried out and, as records of them, these drawings about hold their own with the contemporary output of the French or American schools. The most beautiful set on view are the rendered drawings of the Temple of Fortune, Praeneste, by Mr. H. Chalton Bradshaw (R.S. 1913). These seven drawings and that of an Etruscan Temple are indeed all that could be desired. They exhibit an unflinching feeling for precision, simplicity and a mature richness, in pervading the whole as such, robs the parts of any local prominence —which I take to be a sound test.

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Mr. P. D. Hepworth's (R.S. 1914), "Elevation of the Palazzo Doria Tursi, Genoa," is a large affair, a shade academic but nevertheless handsome and fine. The post-war Rome Scholars went forth, it seems by their subsequent work, bent on ambitious and exhaustive restorations. In support of this contention, I would single out the drawings of the Mausoleum of Hadrian, Rome, by Mr. S. Rowland Pierce (R.S. 1921), and of these, those devoted to the sections of the Mausoleum, for they are excellent specimens of what such drawings should be, what they convey and of how one is enabled to discern, behind their graphs, a store of authentic information. His plan of the Piazza del Popolo, Rome, is rather superb. It gives facts without irrelevancies, and the problem, obviously, has been approached by a mind out to gather what matters most to an architect. Mr. R. A. Cordingley (R.S. 1923) and Mr. M. A. Sisson (J.S. 1924), between them sent nineteen drawings and I cannot think of more pertinacious endeavours than theirs. Both succeed because both tracked their quarry closely and relentlessly. So we are treated to a curious orgy of data and facts, all marshalled and all set down in a neat, business-like way. No frills, hardly any colour, but withal, the lines speak, and if their combined effects may seem, perhaps, a little austere to the plain man, it calls a ready response from any one who wields a T-square and a pencil and cogitates on the uncanny of spatial values and their representation.

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Several architects have contributed to *The Cinema* their views upon the appropriate design of picture-houses and predict the continued increase in size, comfort, and suitability of these novel architectural productions. "The day for showing pictures in any old hall is certainly over" seems to be the underlying feeling of all the contributors, who emphasize the value of seeking to fulfil the main object in the best possible manner. The patron's sense of well-being is the important matter, and to establish this must be the care alike of the picture producer and of the architect who works in sympathy with him. The architecture which merely shocks by its gaudy and tawdry excess of applied ornament is no longer considered as certain to effect commercial success, and harmony in every detail is rightly recognized as essential to a well-equipped cinema. The discovery of this important truth has been long awaited, while we have suffered from every possible and impossible combination of incongruous detail in the

elevations and in the interiors, but it brings hope at last. At last one will be able to visit "the pictures" without shutting one's eyes!

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Some detailed hints as to the methods by which this much-to-be-desired harmony is to be created are also given in the same publication. The front of the building may show some evidence of the architect's consideration for existing monuments of architectural art on either side of the site. Display-stands for specimen photos should be arranged where they help the architecture and do not conflict with it, or eclipse it, in the fashion that is all too prevalent at present. Lobbies and entrance halls, passages and stairs, should all be attractively designed in a consistent style so that the majestic impression created by the joint effect of the commissionaire and his uniform may not be dissipated by the dingy path which leads to the seating accommodation. The technical details of the cinema must of course be up-to-date. "Rear projection" from behind a patent screen which is devised to eliminate the disturbing "flare-spot" is now advocated as it removes the long beam of light from the auditorium. It has also the benefit that the projection chamber can be situated away from the audience where it will not impose a furnace generating terrific heat between the panic-stricken folks and the front door in case of fire.

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The international significance of the Exhibition of Flemish and Belgian Art at the Royal Academy must not be overlooked. It is a gesture of seven nations in a language understood by all. Austria, Denmark, France, Hungary, and the United States of America have combined with Belgium and Great Britain in lending masterpieces. Kings, nobles, and commoners have joined with the galleries and museums in their desire that Belgium shall show the richness of the Flemish school and prove to the world the immense debt it owes to that school. Six hundred years of great art is revealed in this wonderful pageant from the primitive to the sophisticated modern. The modern representation might have been better and the sculpture section is weak. The Brussels museum could have sent a far finer collection on its own, for the Belgian sculptors have produced fine work during the past century. The collection of fifteenth- and sixteenth-century wood figure carving, derived mainly from the diocesan museum at Liège, and the Musées Royaux du Cinquantenaire at Brussels, is of the greatest interest and value however. The latter gallery also contributes tapestries, but the most magnificent are those never before allowed away from Vienna, belonging to the art-history museum of that city. The brilliance of colour and gold threadwork of the throne Brussels tapestry of 1566 is astonishing.

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The collection of drawings makes up for its smallness by the value of the 150 examples. Among the 450 paintings are some of the world's masterpieces, yet but few have any direct architectural interest. There are, of course, a large number of backgrounds with buildings, many of which are by unnamed masters, but there is a most exquisite small wood panel by Jan van Eyck called "St. Barbara," in which a cathedral tower is a miracle of virtuosity in draughtsmanship. There is some interesting architecture in a "Madonna with Child and Angel," by Hans Memling, and attributed to the same artist is a triptych of the same subject with queer stone-coloured carving. Some fine carving in wood and stone, with rich colour-work in carpets and hangings is painted in "The Mass of St. Giles," No. 70. Among the ostensibly decorative pieces there is nothing more rich than two panels by Rubens of a triumphal arch and a triumphal car. Of all the glory of colour and form, of the naturalisms of the landscapes, the excellence of the portraits, and the intensity of religious fervour of a great number of this wonderful collection, this is not the place to speak. To miss this exhibition would be a crime.

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I knew before I went just what I should see at the Derwent Wood exhibition at the Academy. I went on private view day, when I knew I should rub shoulders with the originals of some of the sculptor's work. They came. I saw them ascend the broad staircase, and then thread their way through the throng till they stood, as before a looking-glass, face to face with themselves in marble or bronze. Others came not. Poor McEvoy, whose face haunted me because the sculptor had caught so perfectly its humour and sadness, William Archer, Henry James. Before these we could only stand and wonder, and pass on. In marble, suave and ample, the last named looked down on us from a corner of the room, a trifle godlike. What was he thinking, what would he have said, of the crowd that stopped to admire and examine, to look at him this way and that? Something splendid and urbane. Beside the exhibition of nearly 150 pieces by Derwent Wood, nearly another fifty of the late Sir Hamo Thornycrofts' were on view. Here we were among the more monumental—all of them in the best "gallery" style. I fancied, too, that the voices of the visitors who stood in this room were of an earlier generation. Yes, there were two fashions among them. Derwent Wood came into the world twenty years later than Sir Hamo Thornycroft, and in this period—in these few years—one could feel the change in style between the work of the younger and the older man.

ASTRAGAL

ARRANGEMENTS

FRIDAY, JANUARY 21

At the Royal Technical College Architectural Craftsmen's Society, Glasgow. 7.45 p.m. S. C. Podmore on The Duties of a Clerk of Works.

MONDAY, JANUARY 24

At the Architectural Association. 7.30 p.m. Sir Francis G. Newbolt, K.C., on Architecture and the Law.

TUESDAY, JANUARY 25

At University College School of Architecture. 5.30 p.m. E. G. Richardson, M.SC., PH.D., on Acoustics of Buildings. (Lecture ii.)

FRIDAY, JANUARY 28.

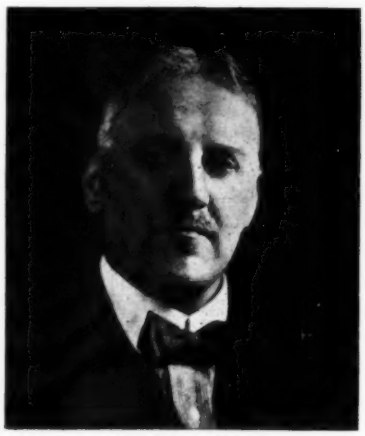
At the Rendezvous Restaurant, 45 Dean Street, Soho. 7.0 p.m. Sir Herbert Baker invites all past members of his staff to dinner.—*R.S.V.P.*

CHANGE OR DECAY?

[BY MAJOR HARRY BARNES]

I THINK the love of good craftsmanship and the desire for it is as strong as ever. If it is not so apparent it is because a larger proportion of our buildings are instruments of gain, rather than of pleasure or devotion. In their construction, cost is the first consideration, and as the time taken is as much an element in cost as actual cash payments, construction is apt to be forced and hurried. Profit deferred maketh the bank balance sick. This factor should not be exaggerated, there are no statistics available, but I doubt if there is less beautiful masonry and joinery done than in the past; it is quite probable there is more. It is the unseen and hidden part that suffers, and even there the vigilance of the clerk of works ensures that neglect and evasion have little share. Yet, taking the balance as being in favour of modern days, there is much to concern us.

Youth is not coming into the crafts, at least not into those which the mason, the bricklayer, and the plasterer ply. Men who know say that the average age in the building crafts is older than in others, and if that be so the outlook is not happy. For crafts die with craftsmen, they have no abstract existence that permits them to survive those who ply them. If we are to maintain these great crafts in vigour there must be recruited a vigorous race of young craftsmen, and any obstacle to that recruiting must be removed if that be possible. What is it that stands between a boy and these callings? That's a question more easily asked than answered. It goes down to the roots of things and probes both ideas and facts. Facts are said to be "chaps that winna ding," but I don't know whether ideas are not harder to move. In this case I am convinced that a main cause is the idea that manual labour is of a lower social order than clerical labour. Our whole educational system tends to encourage this idea, as, indeed, it is the general idea on which modern society rests. Not to do things ourselves, but to direct others to do them, that is the goal set before us from our youth upwards, and it grows less and less easy to persuade a boy that a chisel or a trowel lends as much dignity to the hand as a pen. There are, no doubt, many accounts to be given of the growth of the idea, historical and otherwise, but at least we must recognize its existence if we are to deal with the difficulty it raises.



Major Harry Barnes.

It is clear that it will not be removed or amended easily, but a start can be made. The difficulty that has to be solved is that of combining a good general education with the contented application of the physical powers to the crafts. Ben Jonson, they say, began as a bricklayer and ended as a poet. We want in some sort of way to reverse that process. We might begin, perhaps, by changing the order of admiration; instead of starting with second-hand things—those that are written, and painted, and carved—if admiration began with natural things, sunsets and other skies, flowers and trees, birds and other fleeting things, it might, on its path to sonnets and sonatas, pictures and poems, dwell by the way with stone walls and old brickwork, with panelling and plaster, and learn to regard those who produce these things with something of the respect and esteem that is now lavished elsewhere. But all this is for the future—the far-off, happy days. What can we do right away to get the boy to the banker and the scaffold? Nothing much perhaps. Rome wasn't built in a day it's said, and the conditions under which ancient trades are carried on are not easy to change. Yet change there must be if there is not to be decay.

Where are the changes to be made? Let us look into a boy's mind, or into the mind of his parent anxious for his success and happiness in life, weighing up the advantages and disadvantages of one calling with another. I don't suppose that in one case out of a hundred a conscious classification is made of the things sought after, but in the main they are that the work should be agreeable, that the conditions under which it is carried on should be of reasonable comfort, and that the remuneration should be as ample as may be. Is it much wonder if with these desires, conscious or subconscious, that the three trades I have in mind—the mason, the bricklayer, and the plasterer—have not much lure? They are all exposed trades, dirty trades, dusty trades, and dry trades. Of the three the bricklayers is, perhaps, the least attractive. The mason and the plasterer have, on the whole, more shelter; the bricklayer, except to set a stove, has little roof above his head. They suffer from a threefold fluctuation: there is the cyclical fluctuation of trade, the seasonal movement of the year, and the vagaries of our climate which sends us showers in summer and sunshine on snow. The truth is that the organization of these crafts has not risen with the rise in the general level of life and culture. We have to learn that work was made for man, and not man for work. It's no use applying the worn-out aphorisms of the past to an altogether changed present. The picture of an industrious, abstemious, thrifty working class, is as old-fashioned as the crinoline. If we are to get products in abundance in the future, it will not be by exhausting physical energy, but by applying the resources of the mind. Work must be made more agreeable, and the physical strain less exacting. It must be remembered that the conscious, collective effort of the working classes has been directed for a century towards obtaining leisure, and they will not allow their efforts to be defeated by a process of exhaustion during working hours that leaves them unable to employ and enjoy the leisure they have secured. We must give up the idea that the incentive to work is to be got by putting people in peril of the primary necessities of life. It can't be done; the public conscience has got beyond allowing people to starve, or to go houseless and homeless. The necessaries of life can either be got for nothing or very cheaply. If we are to get the workers to extend themselves it must be by stimulating new appetites that will involve expenditure.

[This is the second of a series of fortnightly articles on the future of the building trades. The articles will be contributed by a distinguished group of architects, builders, politicians, and business men, all of whom have considerable experience of various sides of the subject.—Ed., A.J.]

Better food, better clothes, better houses, travel, amusement, books, pictures, and music: these are the stimuli we must apply. But this is going rather wide of the mark.

We are asking why boys prefer to go into offices rather than workshops, to sit on stools than to stand on planks. Is it to be wondered at if they do? Think of the shelter of an office, the decent sanitary arrangements, the facilities for getting meals in comfort, the labour-saving devices, and then contrast them with the conditions under which the mason, the bricklayer, and the plasterer work. After all, human nature is human nature, water will flow downhill, and folk will seek comfort and ease. Let us face the facts; if we want more lads to go into these trades we must make them more attractive, we must bridge the gulf, close the gap between them and other occupations.

There is room in this work for all of us. Those responsible for the organization and direction of labour must apply themselves to the consideration of the conditions under which these crafts are carried on with a view to ameliorating them. We architects must regard as part of the necessary equipment of a contract provision for the comfort and convenience of the workers in it. We must educate the building owner, if he needs it, to see that the men who build his houses are themselves housed like men while they do it, and if this means an increase in the cost of building, it must be borne. I am not sure that it will. I think it may well be that better work is done and quicker work by men in the atmosphere that is produced by consideration and care.

After all, let us remember that the old strains of hunter and fisher, farmer and shepherd, are not yet bred out of the race, its greater number are yet born to respond to the sun and the rain, and the wind on the heath. The sailor, the explorer, the pioneer, all speak of the call of the open, and given status, and some comfort there are yet recruits for all our outdoor crafts in abundance. We need not fear that they will be diminished by a rise in the cultural level. Who are the devotees of sport, the bearers of gun and rod, but those who have least need to labour. There must be some security however. I have no space here to write of "wet time," but something has to be done about it. To be at the mercy of a shower of rain is a little too much helplessness for the twentieth century, and we have to find a way out of this difficulty. It is not an easy one to remove, all the argument is not on one side, there may have to be readjustments in other ways to get this particular way made straight, but it has to be done. There are signs of co-operation between architects, builders, and craftsmen that are a happy augury of a better understanding in the building industry, and with it better building, and better architecture which, after all, is only building at its best.

RECENT ARCHITECTURE IN BERLIN

[BY F. A. VOYT]

THE revolt against the over-elaborate and pompous style of the "Wilhelmian Period" began even before the war. The poverty that came with defeat and revolution converted simplicity from an ideal pursued by a few gifted and progressive architects into a general and imperious necessity. Although the necessity is no longer so imperious, the lesson of simplicity has been learnt, and little by little the face of Berlin is changing for the better.

The accompanying illustrations show the new style, not in its more daring and fantastic forms, but in the form that is likely to be popular and to characterize the Berlin of the future. The front of a large block of flats at Tempelhof was designed by the architect Borchard. The skeleton of the building is revealed by the lines. An almost old-world simplicity is combined with a certain elegance. The heavy, ornate stucco-work that so disfigures the typical Berlin

Dwellings at Zehlendorf for Government officials. By Professor Mebes

street is gone. Ornament is replaced by colour. The broad, horizontal bands that are broken by the windows are terra-cotta coloured. They alternate with broad bands of dark yellow, each one being topped with a moulding of cobalt blue. The plinth is of brickwork. The use of gay colours is an innovation that is beginning to brighten entire quarters of the city and of the suburbs, particularly by contrast with the sombre, oppressive buildings in the "Wilhelmian" style. Under the new German building regulations all blocks of flats have to be erected round a large open space—a garden or a courtyard planted with lawns and trees. Every flat, however small, has a balcony facing the street and a kind of loggia facing the garden. Another illustration is given of a corner of the same block showing how the monotony of the great cubic mass and of the horizontal lines is relieved and broken.

The "Seidlung," or complex of 480 four- to six-room dwellings for Government officials, was erected in the suburb of Zehlendorf by Professor Mebes. Except for the bright-green window-shutters and the front doors, which are painted in the gayest and most varied manner, there is no attempt at bright colours as there is in the work of Borchard. But a very happy effect is produced by the brickwork. Poverty after the war made it impossible for German builders to use only such bricks as were "true to colour." Much against their will they were compelled to use whatever bricks happened to be available. The result was found to be quite pleasing, and while the necessity has passed away the fashion has remained. The brickwork of the new houses at Zehlendorf has a richness and a variety that are extremely attractive. The buildings, also erected round a great open space which has been divided up into gardens, one for each family, have a simple, picturesque charm in spite of their modernity. Nothing is allowed to spoil the harmony of the scheme as a whole. The work is of the highest finish. Even the brass fittings, the railings, the street lamps, and so on, have been designed by Professor Mebes and his staff to fit into the general scheme. Many of the fittings are in themselves objects of great elegance and beauty. Even the "village store," with its quaint arcade, shown on the right-hand side of the picture, is subordinate to the whole, while giving it a very picturesque touch.

Block of flats at Tempelhof. By Herr Borchard. Above and below, details of the principal elevations.

THE RUGBY IMPERIAL RADIO STATION

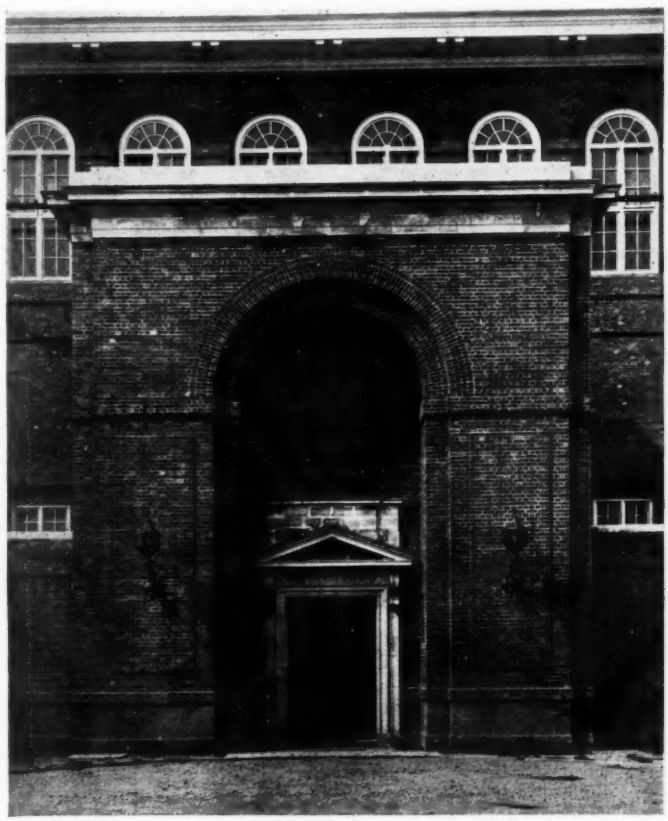
[BY FREDERIC TOWNDROW]

ABOUT five miles south-east of Rugby, near the village of Hillmorton, there is a large area of flat country which in extent is about one and a-half miles long by one mile wide. It is bounded on the east side by the Watling Street along which the Roman Legions marched on their way to Chester, and on the west side by the Oxford Canal and the London and North Western Railway. Set around this area, and standing thin, black, and taut against the sky are twelve great masts of latticed steel, each rising to a dizzy height of 820 ft. Across the country they look like a great succession of giant latticed steel maypoles stayed by steel ropes.

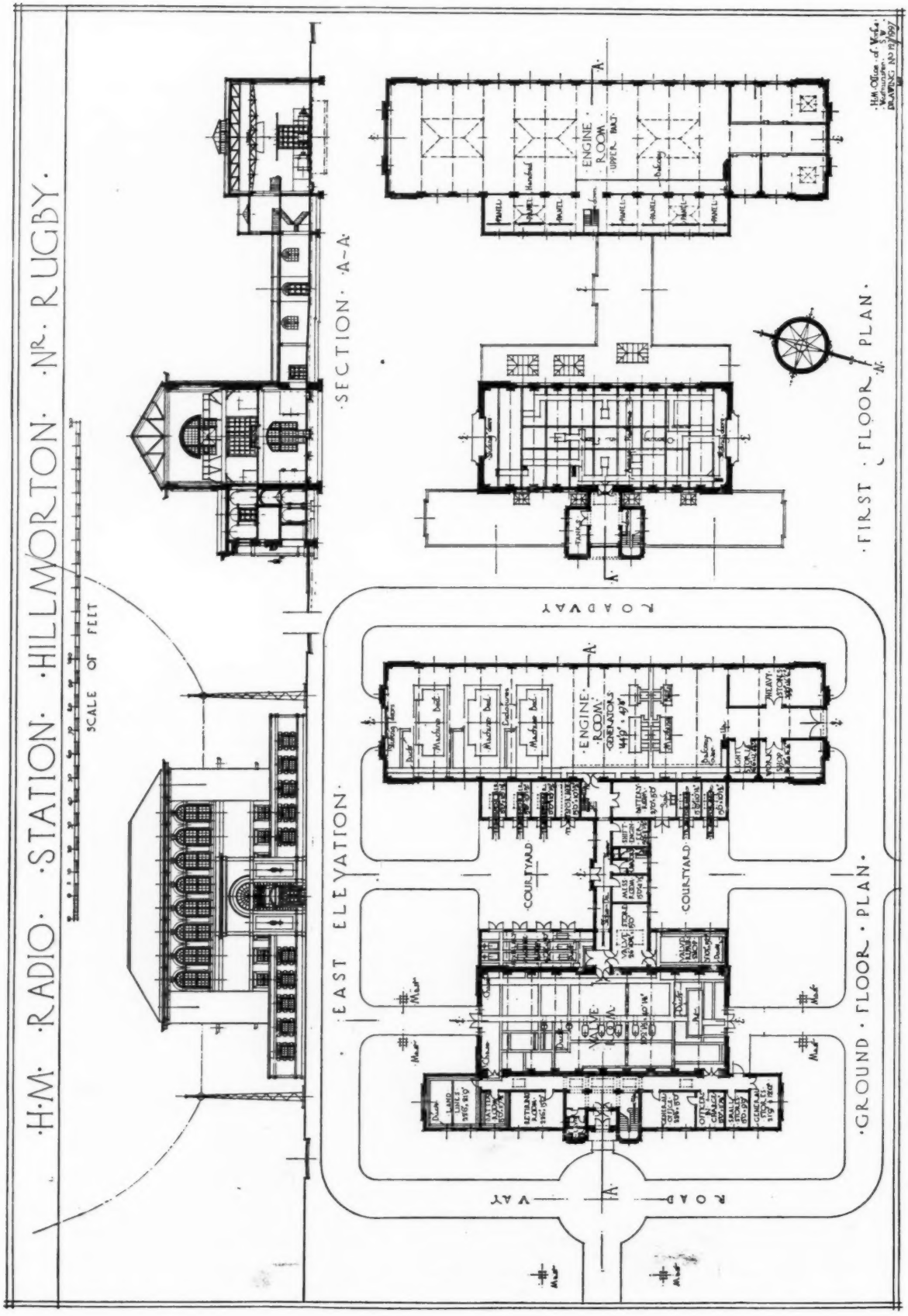
Eight of these masts are so arranged that they make on plan the form of a great elongated octagon, and the remaining four masts, with two masts which make a side of the long octagon, form another and smaller elongated figure. Supported 820 ft. in the air by the tall masts are the aerials; the larger one is two miles in circumference, and the smaller one is one and a-quarter miles in length and is used for transatlantic telephony. In the centre of this immense ring of the many-wired aerials, and beneath the multiplicity of steel ropes and stays, there is—what one would least expect to find in such a place—a simple red-brick building of great charm and interest, full of colour, with lively touches of imaginative design, and a rural calm about it which seems at first sight somehow out of keeping with those gaunt steel masts and the highly charged air of modernity which encircles these fields. That is a first impression, when the eye, from looking up at the great aerials, looks down to the building; but gradually the scale of the building grows until one becomes impressed with its size, the breadth of its treatment, and the arrangement of its masses.

This building—the Rugby Imperial Radio Station—is in certain respects the largest and most powerful radio station in the world, and it embraces features which mark notable advances in the science of radio-telegraphy. The station is the property of the British Post Office, who, with the Wireless Commission, have shown remarkable initiative in planning a radio lay-out on such a large scale, and advanced scientific knowledge in designing the electrical apparatus. The architect was Mr. F. A. Llewellyn, of H.M. Office of Works.

It is a twofold station. Its main function is the world-wide transmission of telegraphic messages; to reach, in particular, the outlying parts of the Empire and distant ships at sea. Apart from the wireless telegraphic installation, there is a transatlantic wireless telephony installation which is smaller and uses the smaller aerial. Among the world's largest stations it is the only one which uses the valve system of transmission. It must be remembered that Rugby is solely a transmitting station; it does not



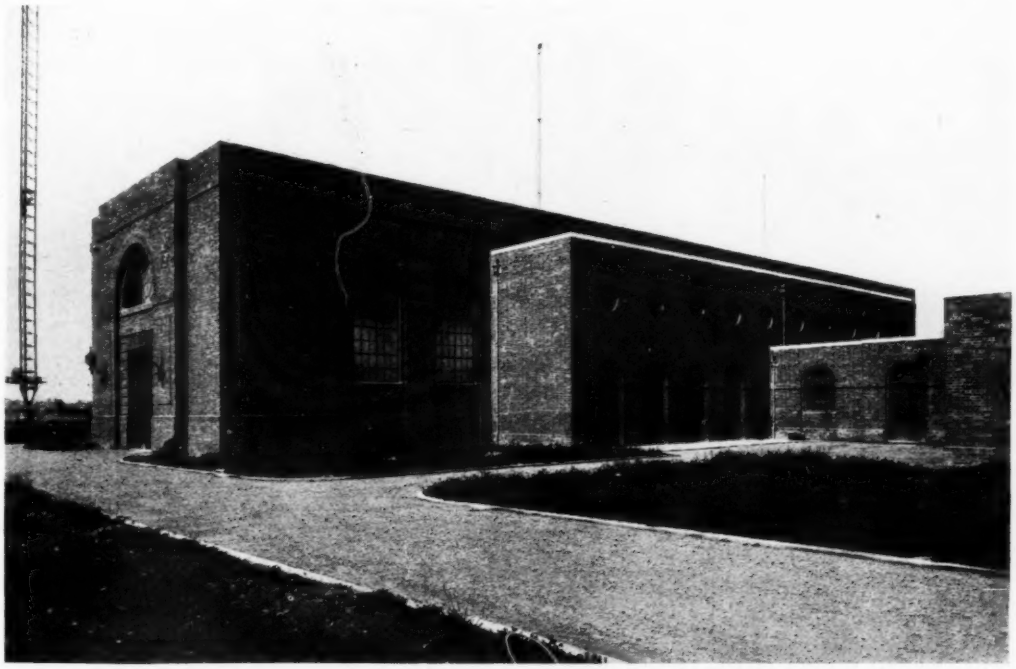
The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. The main entrance.



The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. Plans, elevation, and section.

receive wireless messages direct. The long-distance telephonic messages are received at the Wroughton Receiving Station, near Swindon.

The telephonic communication between London and New York works in a cycle, which is as follows: the telephone message travels by land-wire to Rugby, where the minute currents produced by the microphone are made to provide a high-frequency wave, which by stages is amplified 500,000,000 times and then radiated into space through the great antenna. The waves are picked up at the Houlton (Maine, U.S.A.) Receiving Station, whence the message travels by land-wire to New York. The reply travels round the other half of the cycle and completes it, viz. it travels as a telephone message over a land-wire line from New York to Rocky Point, Long Island; at Rocky Point it is sent out in waves across the Atlantic, the waves are received at Wroughton, England, and a land-wire takes it the rest of its journey to London. It is amazing to think that when one speaks into that telephone mouthpiece at the London Trunk Exchange, and says "How do you do?" to a man in America, his spontaneous reply, "Very well, thanks," has travelled all

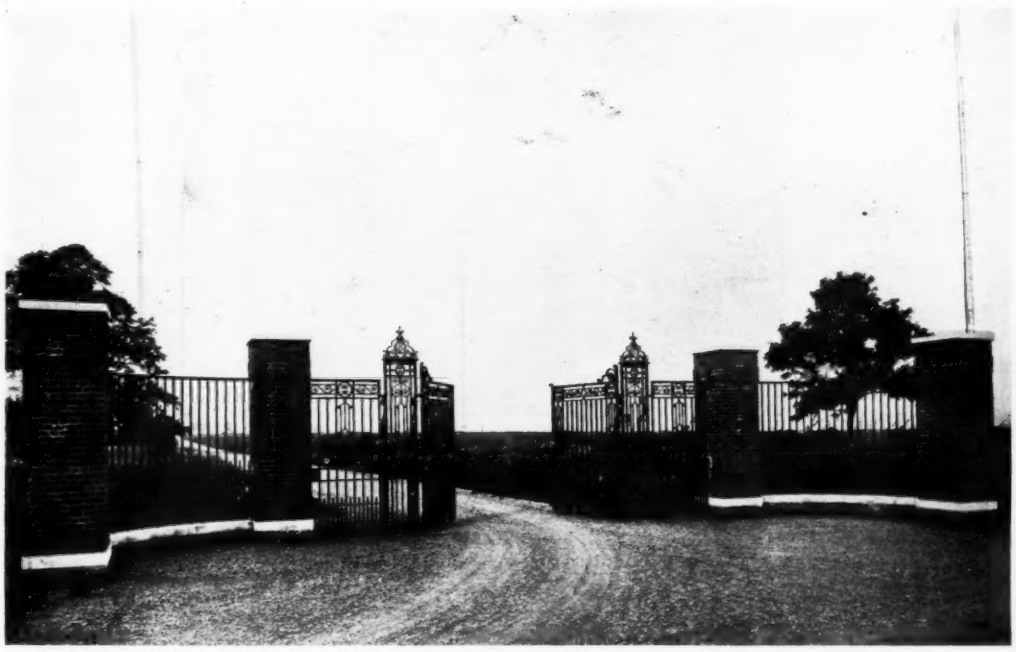


The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. Above, the main elevation (transmitting block). Below, the generator and transformer blocks.

the way from New York to Rocky Point, through miles and miles of wire, coils, condensers, and valves, across the dark waters of the Atlantic, through coils and valves again, and up to London across the fields of England. Those few words, which in the minutest fraction of a second were heard and responded to, had covered a distance of over seven thousand miles. Thus are the values of time and space becoming no values at all.

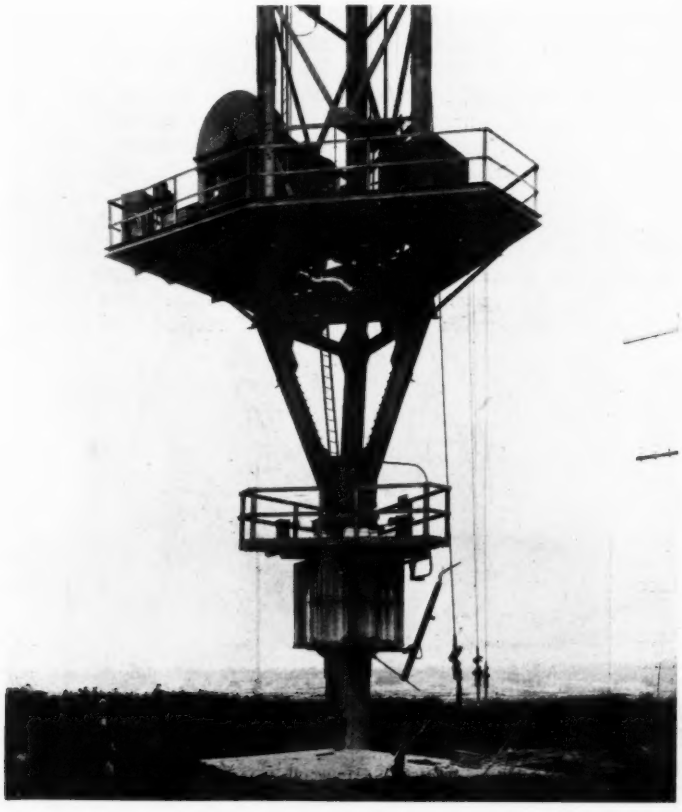
The work carried out at the station may roughly be grouped as follows: the generating of power, the transforming of current, and the amplification and transmission of the waves. This grouping in the internal organization

The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. Above, official residences. Below, a water tower, with garage under.



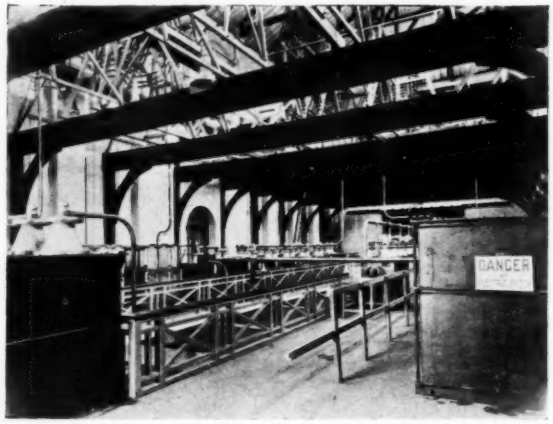
of the station is, happily, expressed in the grouping of the building. As will be seen from the plan, the engine and generator room is a long, wide block 180 ft. by 50 ft. This is, in fact, a power-station; its work is simple and direct, and its external character also is simple and direct. Along a great part of one of the long sides of the engine-room, and built on to it, is the transformer block which has the transformers below and the panels above. The small scale of its parts makes rather a sudden change from the large scale of the engine-room, and the bull's-eye windows provide a decorative note which no doubt implies that transforming current is a more delicate operation than generating it.

A low one-storied connecting link, in which are placed



The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. Above, the entrance gates from Watling Street. Below, the base of one of the 820-ft. masts. Each mast has a lift inside its shaft to carry three men.

the messroom, lavatories, and engineers' room, connects up to the transmitting building which runs up through three stories, and, with the general offices, auxiliary machine-room, valve repair shop and stores, makes the most important block, in which is housed the most delicate apparatus. I have said that it is arranged in three stories, but the third story is not strictly a story at all, for it is spanned at second-floor level with great timber beams which carry no flooring, but support, high up, the inductance coils (or "spiders"), and below these a whole maze of wooden gangways which give access to the coils. On the ground floor are the big panels which contain the valves, and on the first floor are placed the condensers. The centre of the first floor is open so that a view may be obtained from the ground floor, up past the first-floor condensers, past the big beams at second-floor level, and beyond the maze of wooden gangways and inductance coils, to the timbers of the roof.



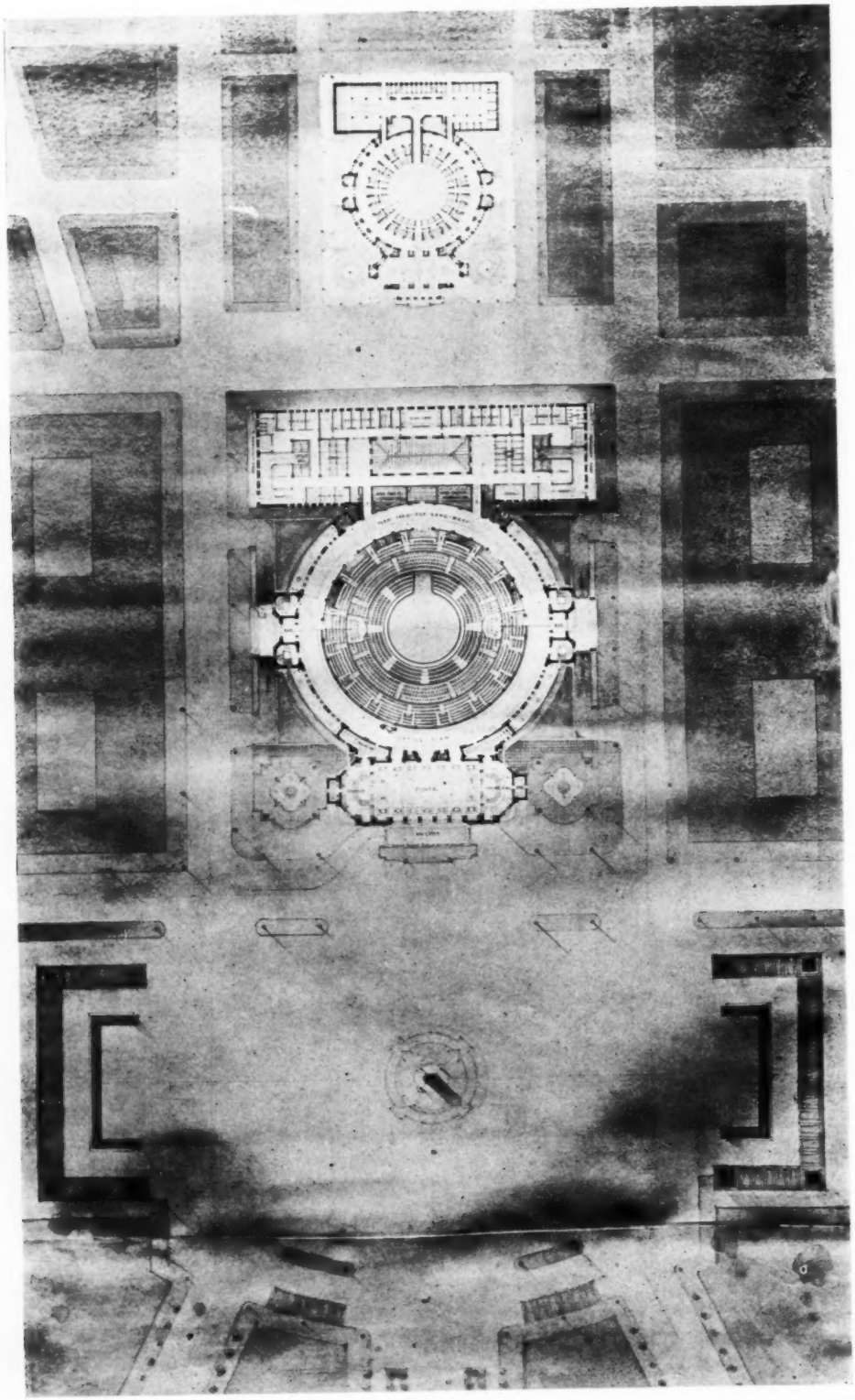
To quote from an official report: "The nerve-centre of the station is in the valve room, where the most powerful and most constant transmitting force ever put into operation is originated and controlled by a very small and delicate instrument, using the almost unmeasurable amount of power of one-millionth part of a watt; and from that insignificant beginning it is magnified about 500 thousand million times. The nature of the reception of the signals discharged at Rugby, when they reach a battleship off the Falkland Isles, a prairie town in Western Canada, a hill station in India, a sheep ranch in Australia, or any other part of the world, is thus regulated by, and dependent upon, the diminutive tuning-fork at the originating station." The giant valves amplify the current in three stages of amplification, and the resultant current when delivered into the great antenna of the aerial circuit is flashed through the ether in waves of 18,740 metres. As to the building itself, it may be felt that there is nothing about it, either in its general construction or in its external character, which would indicate the very modern purpose which it serves. Indeed, the rich browns and purples of the carefully bonded brickwork, with its wide, flush mortar joints, the delicate tracery of the circular-headed windows, and the simple richness of the wide overhanging eaves, which, with the studied effect of light and shade, produce an impression on the mind which is one of charm rather than awe.

But this is a case where modern science does not take kindly to modern construction, for the experience has been abroad, where stations have been built in reinforced concrete, that in certain parts of the building energy is taken up by the steel, which is detrimental to the structure, and bad for the efficiency of the station. So the curious position arises, in this the most up-to-date aspect of our development, that there is a reversal to the ancient and time-honoured methods of construction, that is, building with burnt clay, stone, and wood. Mr. Llewellyn found that with these materials to work with, try as one might to produce something which was expressive of the essential modernity of radio-telegraphy, and what it stands for in the twentieth century, one always came back naturally to the traditional forms characteristic of those materials. The large windows are arched, because, simply, there is no other way of covering a large opening when a reinforced concrete lintol may not be used. The pleasant patterns in white which the sashes make is just the most economical sub-division of the spaces with the necessary thickness of wooden bar. The overhanging eaves protect the upper walls from rain, for moisture is a conductor of electricity. Even the down-pipes are stoneware instead of metal.

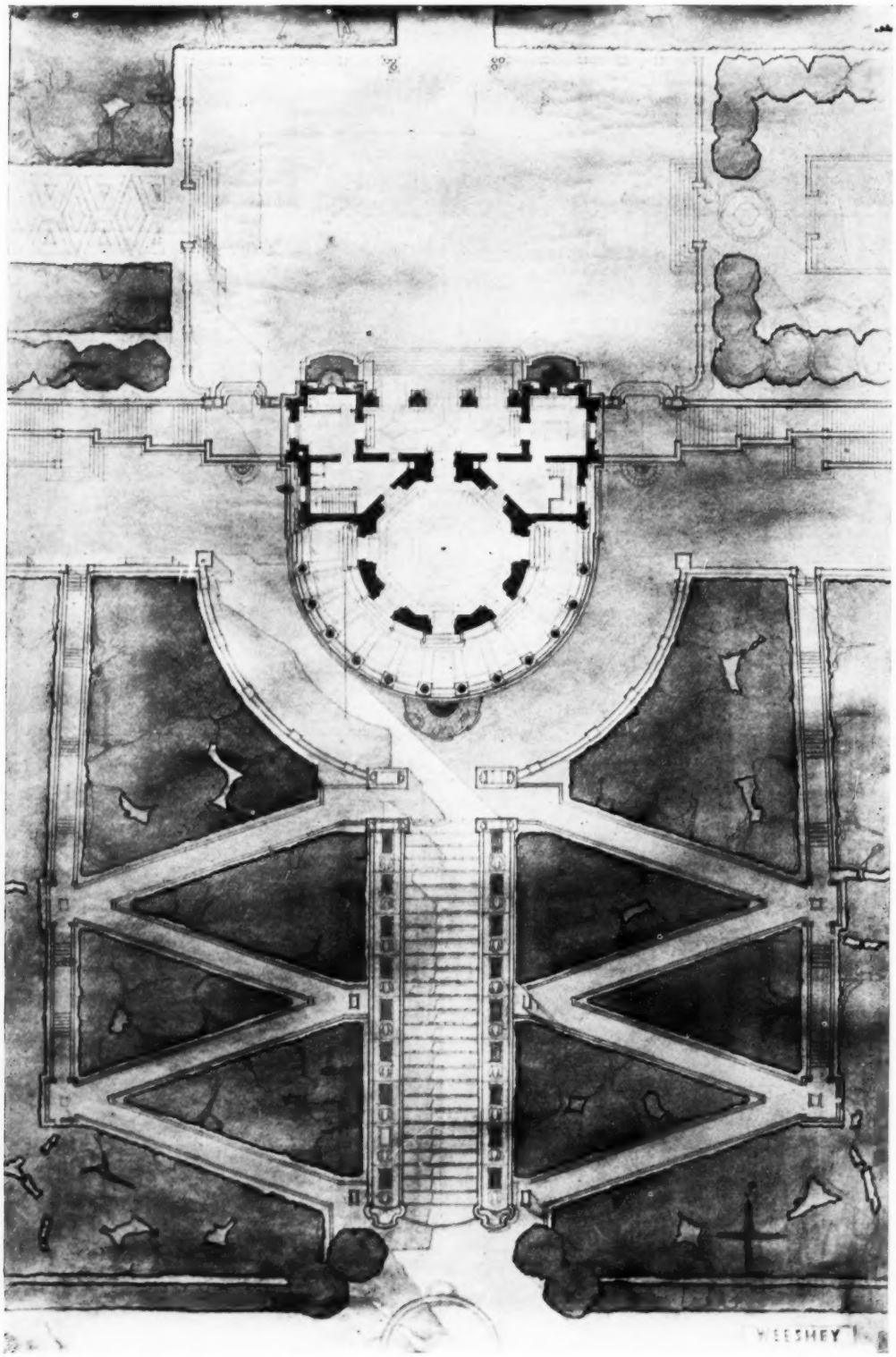
There was especial need for the avoidance of any conductive material in the construction of the upper part of the transmission block, that is, the part within the inductive field. Here there is not a nail or screw in any of the joinery, the whole of this being held together with glue and fibre bolts. Further, there was the danger of spontaneous ignition in the timber as a result of the high-tension currents employed, and after considerable experiments it was found that basswood was the least likely to be affected in this way. The great beams at second-floor level, which support the gangways and the coils, are of extraordinary scantling, and something like a search throughout the country had to be made in order to obtain the baulks. The external facing bricks are interesting in that they are really engineering bricks of great strength and density, and yet they are hand-made and sand-faced, and impart to the building a warm and varied colour.

The general treatment of the building is, I think, very noble, and impelled as he was from introducing the newer forms of vertical and horizontal stress, which are contingent upon the steel column and lintol, Mr. Llewellyn has brought about an effect (largely by contrasting broad wall surfaces with the tracery of windows) which is, happily, not only expressive of the power of wireless telegraphy, but also its delicacy and human interest.

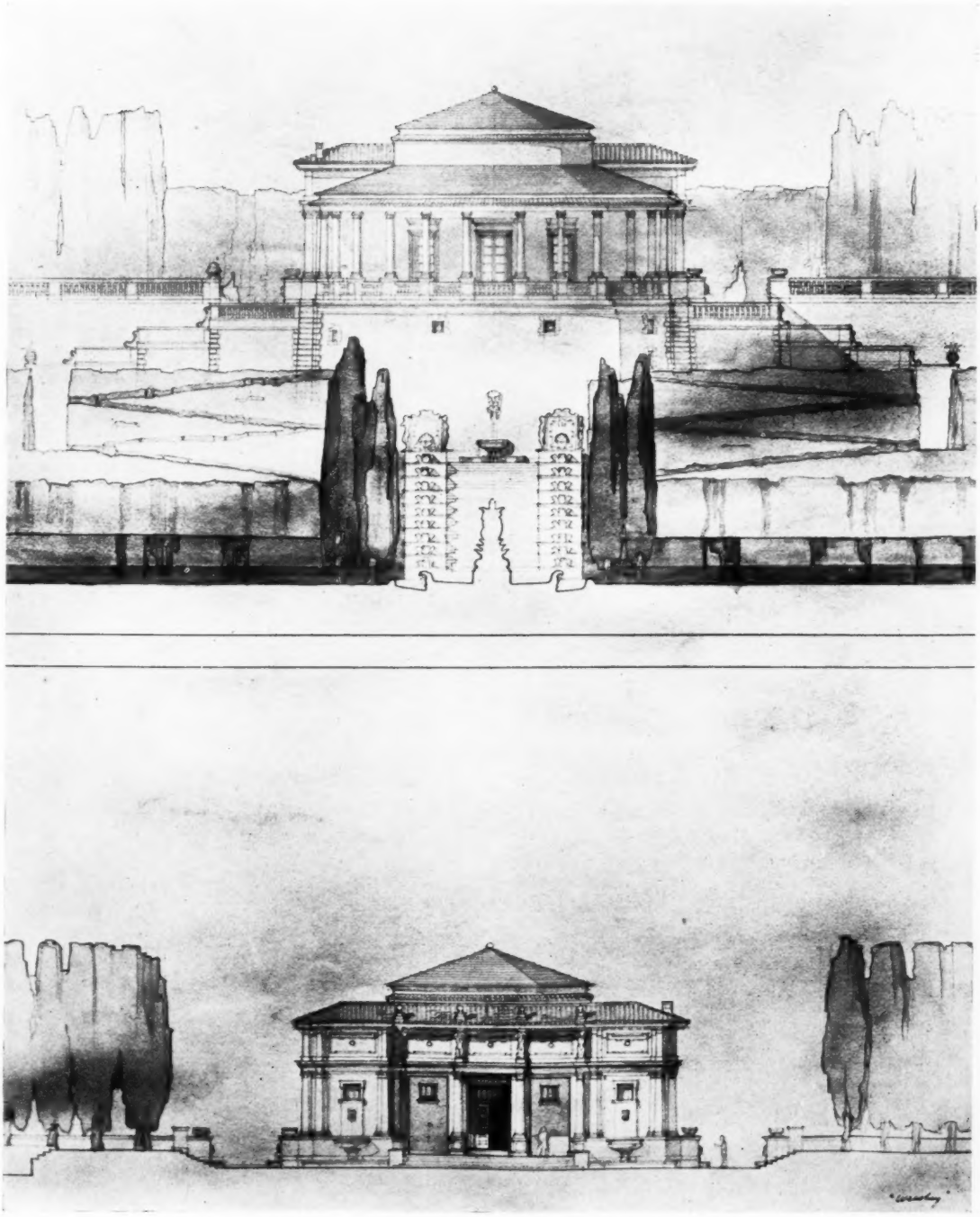
The Rugby Imperial Radio Station. By F. A. Llewellyn, O.B.E. Above, the inductance room, showing the condensers below and the inductance coils and galleries above the beams. Below, a typical bridge on the site.



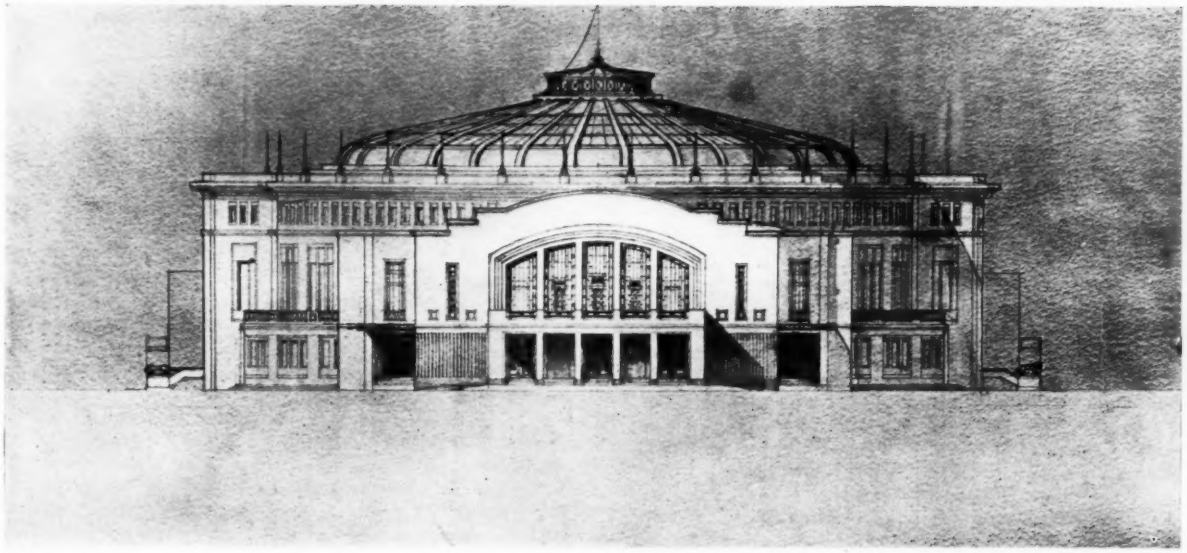
A DESIGN FOR A CIRCUS. THE VICTORY SCHOLARSHIP: WINNING DESIGN.

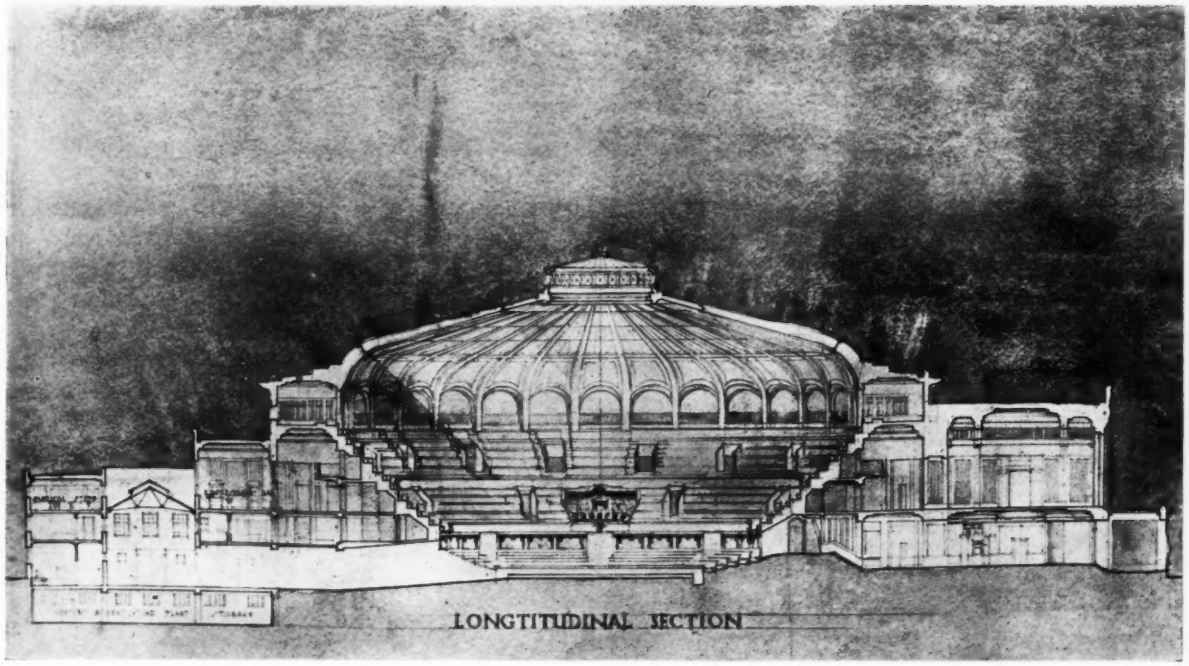


A DESIGN FOR A BELVEDERE. THE TITE PRIZE, 1927: WINNING DESIGN.



A DESIGN FOR A BELVEDERE. THE TITE PRIZE, 1927: WINNING DESIGN. A LIST OF THE R.I.B.A. PRIZES AWARDS APPEARS ON PAGE 147.





A DESIGN FOR A CIRCUS. THE VICTORY SCHOLARSHIP: WINNING DESIGN. A LIST OF THE R.I.B.A. PRIZES AWARDS APPEARS ON PAGE 147.

AMERICAN BUILDING METHODS

[BY T. S. TAIT]

ii: AMERICAN ARCHITECTS AND THEIR METHOD OF WORKING

THE office of the American architect, with a few exceptions, is a much more complicated and complete organization than it is in this country. Messrs. Graham, Anderson, Probst and White's office in Chicago is probably one of the most efficient organizations in America. This firm has its own steel and mechanical engineers, lift, lighting, and safe construction experts, surveyors, and outside superintendents, as well as its architectural staff. Its office is fitted up with board-room, library, superintendents' and contractors' rooms, rooms for samples, plans, etc. Such organization should not affect the artistic quality of the work, but it certainly affects its efficient execution, and inspires the client with confidence in the practical ability of the architect.

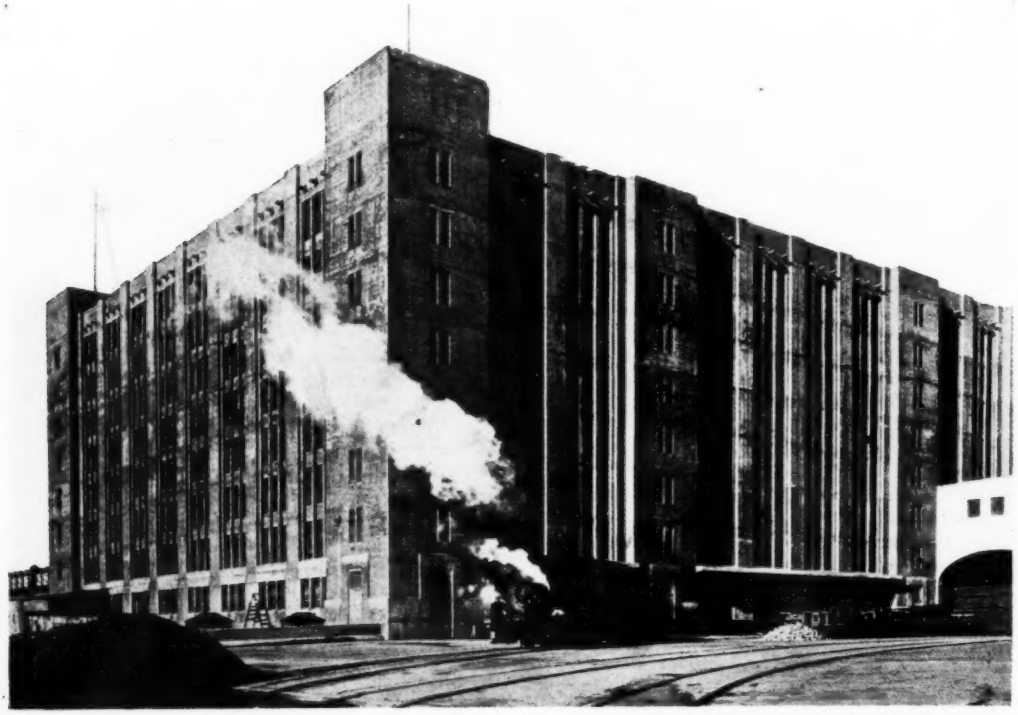
The necessity for such a large organization renders it more difficult for the young man when starting practice on his own, as he must engage a business manager, head draughtsman, and specification writer. This entails an expensive office to start with, and he may commence practice in three ways. 1: By obtaining a large commission. If he does, he is fortunate and can afford to engage a highly-paid staff. 2: By sharing a staff with another architect. This arrangement is made by some of the younger architects who have not sufficient work to warrant them engaging a full staff. Two or three architects may group together, though not in partnership, and have one common staff whose assistance they engage only when required. 3: By gaining a competition. But in American competitions, both "limited" and "open," consideration is given to the education and experience of competitors. The award is not given to one who though he may show brilliance of design lacks technical knowledge of the problems of the structure and equipment of a large modern building, or the executive ability necessary to carry the work through. In certain cases, a younger architect may associate himself with a firm of some standing.

Another large architectural firm in Chicago is that of Holabird and Roche, which engages about thirty mechanical engineers alone, not including steel engineers or architectural assistants. This firm works on the lines of the Ecole des Beaux Arts, keeping two very efficient designers, who prepare all preliminary sketches and designs. These drawings, after being approved by the client, are handed over to the draughtsman in control of the job, who develops and converts them into working drawings.

Going over on the *Adriatic* I had the good fortune to meet Mr. Thomas Hastings, one of the architects of the new Devonshire House. I found him a most charming and witty companion. He was reading a book on the Italian painters, and suggested that, at that time, artists were probably more commercial than those of to-day, a fact almost proved by the great number of assistants working under the old painters. In New York I visited his office many times, and had access to his well-filled library, a delightful room with its pieces of sculpture work, models of old ships, and its walls lined with volumes all classified to suit the architect's practice. Here his assistants are privileged to sit and study any particular problem requiring solution. His office is essentially artistic rather than commercial, and Mr. Hastings lays great stress on the careful drawing-up of details, which he or one of his partners undertakes personally. One of his most recent buildings in New York is the new "Cunard" shipping offices, on which he was associated with Mr. Morris. It is certainly one of the finest of the new buildings, both externally and internally. Another of his works is the new Standard Oil Company building, the vestibule of which is carried out in marble and has a beautiful painted ceiling. On the top of his office skyscraper, Mr. Hastings has an old-world bungalow, from which, high above its hustle and turmoil, he can look down upon the amazing city. Yet he is in love with our older country, and has a great ambition to give up his busy practice in America and live in England, enjoying himself here, perhaps, more leisurely with monumental work or the smaller pieces of architecture.

Mr. Raymond Hood, architect of the Radiator and Tribune buildings, Chicago, I was particularly interested in, as one of the younger members of the profession. His method of designing instantly appealed to me. After the plan of accommodation is thoroughly drawn up, he prepares, with the assistance of a young modeller, a sketch model of the building in plasticene, to a small scale. This is submitted to the client, and afterwards a further model is prepared to scale, from which all drawings are worked. No alterations are allowed to be made on the drawings without first altering the model. The modeller then proceeds to enlarge the details of the model to ¾ in. scale from his small model, not from the drawings. His ¾ in. details are enlarged to full size. The draughtsman, when making the drawings, cuts sections through the model and transfers the outline to the drawing. This ensures that the projections will be correct. I think that his buildings above-mentioned testify to the success of this method, as

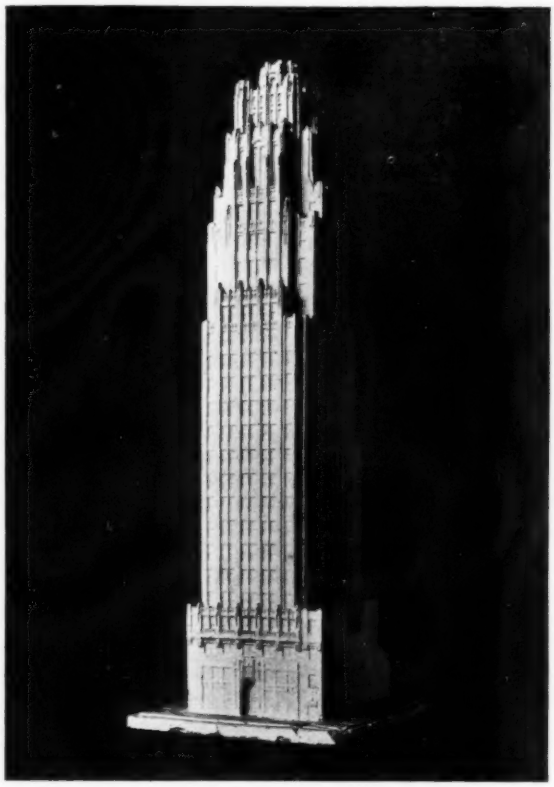
Sphinx for the Liberty Memorial, Kansas City. By H. Van Buren Magonigle.



the true test of a building should be that it is first of all a piece of sculpture. When I visited him he was engaged on a memorial in the form of a circular basin sunk into the ground, to be placed in the centre of a forest. The client wished some alterations made, and Mr. Hood wired to his modeller to come from New York to Chicago, a distance of about 1,000 miles, to carry these out and get the client's approval before he left.

I had also the pleasure of meeting Mr. Corbett, of Messrs. Helme and Corbett—designers of "Bush House" in London—up on the top floor of his Bush Terminal skyscraper in New York. His office is organized more on English lines, i.e. he keeps a comparatively small draughting staff, and engages outside experts for the steel design and mechanical equipment, prepares careful designs himself before handing them over to the draughtsman for the making of working drawings, and thus saves both time and expense in getting what he wants. He also prepares models for all his work, but these are carried out in cardboard by his own staff, and they certainly are most successful, as is shown by his scheme for the "Temple of Solomon" recently exhibited at the R.I.B.A. in Conduit Street.

Another architect who makes use of models is Mr. Magonigle, a most charming and delightful man. Although he had only returned from Japan the previous day, he spent the whole afternoon showing me his work, and explaining his methods. Mr. Magonigle not only prepares the models himself, but he is a sculptor of no mean order, as the photographs of the Sphinx, illustrated herewith, will testify. This Sphinx is about 16 ft. long, the full-size model of which he executed himself. He also paints very well. One would almost call him the "ideal architect," being, as he is, painter and sculptor, too. He keeps a small office, preferring to take personal control of all details than to organize work on the almost commercial scale common to most American architects.



One of the "biggest" architects in America is Mr. Cass Gilbert. I do not mean merely because of the amount of work he produces, which in itself is great, but that he is an architect in the truly big sense. He produced the highest building in New York, and was also the first to design a high building with a very plain shaft of many stories. He was the first in America to design those excessively simple buildings of long vertical lines without cornices, as is shown in his U.S. Army Supply Base Government building, erected during the war. Besides the large commercial

Above, the U.S. Army Supply Base, South Brooklyn. By Cass Gilbert. Below, a model of the Radiator Building, New York. By Raymond Hood.

buildings and Government buildings, he has carried out many most charming small colonial buildings in whose educative value to the community he is a great believer. Showing me a photograph of a most beautifully detailed council chamber for some middle-west provincial town, he said, "the members" (mostly of the pork-butcher type) "simply have to behave when they enter a room of this type," and I firmly agreed with him. He is a man who does big work, and believes that for the young man there is no royal road to architecture except by hard work.

Most American architects have well-arranged offices with good reception-rooms, which must influence the clients on their first entry, and Messrs. York and Sawers, the bank architects, are no exceptions. Their entrance hall has a well-designed marble floor laid out in squares, each square a sample of a different kind of marble. There is a key plan on the wall, and the clients and designers can distinguish the marbles when deciding upon them for any of their buildings. The board-room, with its beautiful old furniture, rough plaster work, and leaded windows, has a black terrazzo floor laid out in squares with thin brass strips and star centres. The draughting-room is top lit, and has cubicles for the head draughtsmen all round, where they can work in peace and quietness and be near their assistants, too. There is no feeling of hustle in this office, and the men talk and discuss their designs, and appear to enjoy their work thoroughly. The mechanical services of the work in this office are carried out by outside experts.

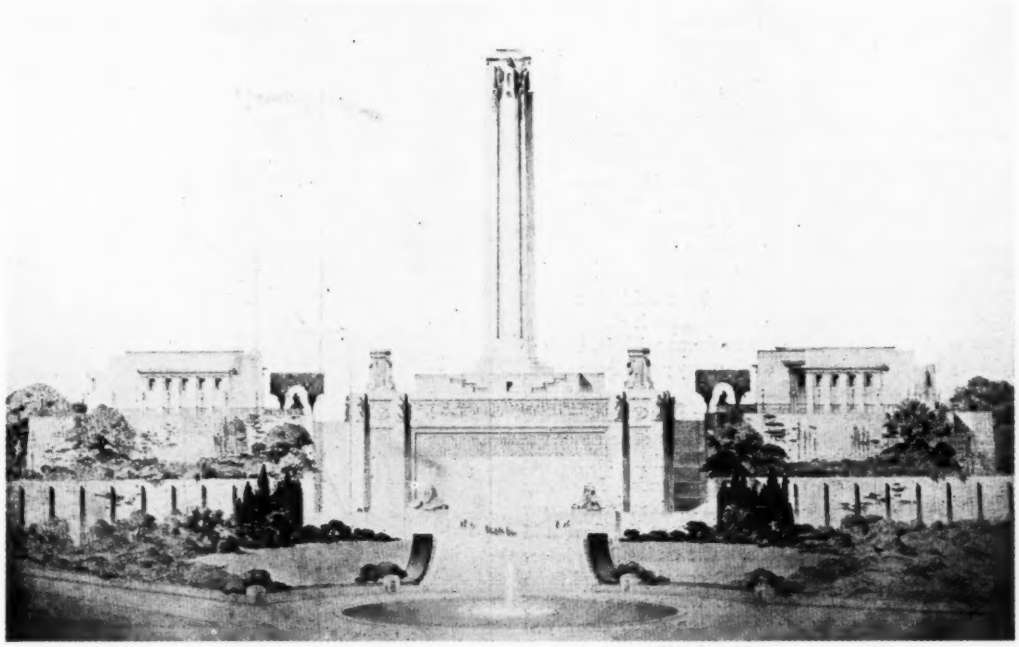
I was taken over McKim, Mead and White's office by one of the partners, the son of the late Stanford White, who showed me some beautiful drawings of the proposed new bridge in Washington. This firm has a large amount of work in hand—more than it has ever had—and Mr. White informed me that each man in the office receives a share in the profits of the firm. This system is practised in many large offices in America. It gives the assistants an interest in the business and ensures the engagement of a more or less permanent staff of good men.

Mr. Mackenzie, whose firm has just completed the large new telephone building in New York, mentioned that it gives a fifth share of the profits to the assistants, proportionate to their salaries, after one year's service. This new telephone building, dwarfing by its proportions and mass the Woolworth building, is one of the most recent in New York. Simple in outline when in geometrical elevation, it is most impressive and picturesque when viewed from below in sharp perspective.

Another office of interest was that of the late Mr. Bertram Grosvenor Goodhue, now carried on by his young partners and efficient assistants. I was shown some of their work in their oak-panelled reception-room, with its plaster models, beautiful drawings, and secret doors. Their work is developing a new style of architecture, evidenced in the Nebraska New State Capitol, excessively plain, almost monumental, with no mouldings either Classic or Gothic, and only sculpture work for its ornamentation. This sculpture work is not applied to the design as a separate detail, but works out from the solid with a gradual growth from the plain masonry to the sculpture work. The late Mr. Goodhue was assisted from the beginning by Mr. Lee Lowrie, sculptor, who gained considerable fame by his work, particularly that on the Science College, Washington. When Mr. Goodhue produced some of his wonderful scale drawings for competitions he engaged the assistance of Mr. Lowrie to make small scale models of the sculpture work, which were photographed with the shadows at 45 deg. These were afterwards copied by the draughtsmen, who made those excellent drawings with happy results. Their $\frac{1}{8}$ in. scale working drawings are drawn on cloth in light ink, and the solids or sections are the only parts drawn with solid black lines. This makes a much clearer drawing and keeps the surface lines or decoration in their proper relation to the openings. These drawings, as well as the drawings of all American architects, without exception, are carried to a finish and completeness which would surprise most British architects, and there is little wonder that contractors in the States can carry out their work with such expedition, as they have all the information before them.

I would strongly advise every young architect of any ambition to pay a visit to the States, and if possible work for some time in an architect's office to gain experience in the handling of a job. I need only add that I was received with the greatest courtesy and kindness by the architects whom I visited, which helped to make my visit both instructive and enjoyable.

[*To be continued.*]



The Liberty Memorial at Kansas City, Mo. The principal elevation of the winning design. By H. Van Buren Magonigle.

SOME BUILDING FAILURES

[BY PROFESSOR HENRY ADAMS]

A CAREFUL study of actual failures is of the greatest value to the architect and the builder, enabling them to provide against such accidents in the future. In the early days of reinforced concrete they were rather numerous, not so much from faulty design as from incompetency or inadequate care on the part of the builders. In one case the reinforcement of a beam was not carried to the supports, so that when the load came on the beam simply sheared through the plain concrete. In another case, of a factory that failed, I found almost every possible mistake. The work had been carried on through the winter with no precautions against the low temperature. The original design was bad, some of the reinforcements being shown on the compression side instead of on the tension side; a collar beam roof with insufficient provision for tying the ends of the collars; pillars with the reinforcement stopping short 2 ft. to 3 ft. from the top; beams with the reinforcement not reaching the pillars; reinforcement not kept in position, so that some of the ends of the rods were showing on the face; insufficient and wrongly placed shear stirrups; concrete improperly mixed, so that when the building fell a handful of loose gravel could be picked out here and there from the beams; at other parts the concrete was still soft from the cement having perished before use; some of the pillars were bent and out of line. To add to the difficulties a change of foremen occurred during the work, and also a change in the brand of the cement.

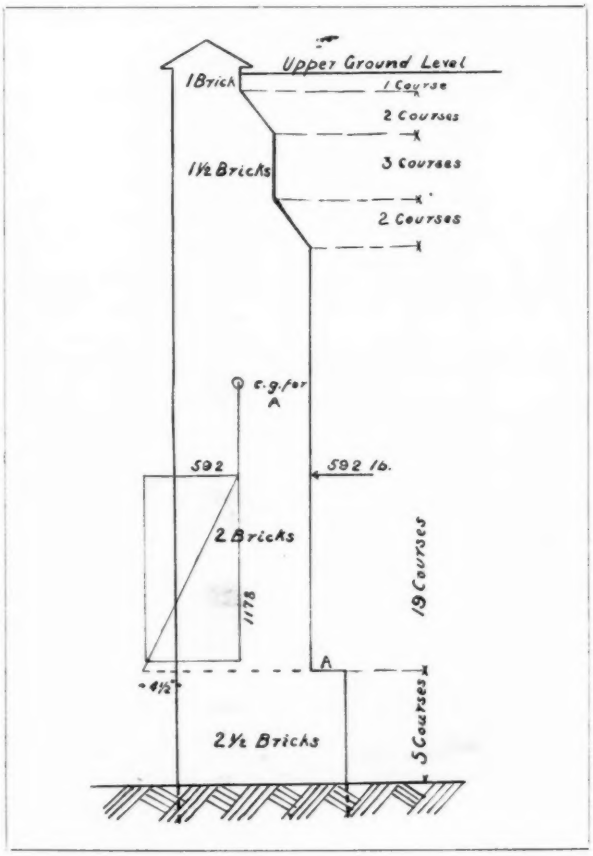
In another case the secondary floor beams were pre-cast; they were reinforced for both tension and compression. The floor gave way in course of construction. Two of the beams ready for use were sent to Kirkaldy for test. In one of these the compression reinforcement thrust out at one side showing that the bars were not tied together as they should have been. The shear stirrups were equally spaced, alternately $\frac{3}{16}$ in. and $\frac{5}{16}$ in. diameter, instead of being placed in proportion to the stress. The concrete was more or less honeycombed, showing want of sufficient tamping during the filling of the mould. The compression reinforcement was $1\frac{1}{2}$ in. nearer the neutral axis than is usual, so that it was unable to put forth its full strength. One of the beams failed under test at one-third of its calculated strength. In consequence the whole floor was condemned and new floor beams made. With regard to the concrete, its want of strength was supposed to have been due to the aggregate and sand being partially frozen when mixed, and there was also subsequent frost while the work was being carried out. Upon examining the fallen materials some of the reinforcing rods were with plain ends, without hooks, and not even turned up or splayed. A large portion of the concrete was quite rotten. No test certificates were obtained with the cement. The various connections of beams to wall and pillars were without splays or angle brackets. No shrinkage reinforcement (wrongly called "temperature reinforcement") was used, and consequently the walls showed several large cracks. It has been said that good reinforced concrete costs more to pull down than it does to put up, so that one does not expect failures to occur with it, but for this it is necessary to be on guard through every part of the work, from the design to the finished structure.

In another large reinforced concrete factory that I examined I found many faults. Upon cutting away the sides of some of the main beams, owing to many cracks in the length, I found the shear stirrups bunched up close together at the ends. In pillars running up more than one floor and reduced in size at the upper part, the vertical reinforcing rods stopped short at the floor and started again, but not over the old rods. The ends of the lower rods were cut off quite plain, and were not equally spaced from the corners. Presumably vertical faces of walls were winding and bulging. As the factory was in use, the main floor was strengthened by very heavy brickwork in the basement, at considerable expense which might have been avoided with closer supervision during construction.

It ought to be more widely known that the Institution of Structural Engineers publish two documents at a very reasonable price that are of the utmost value to prospective users of reinforced concrete. These are: 1: *A Standard Specification for Reinforced Concrete Work*, 1s. 3d. post free, and 2: *Recommendations to Inspectors, Clerks of Works, and Foremen concerning the Execution of Reinforced Concrete Works*, 7½d. post free. They may be obtained from the secretary of the Institution, 10 Upper Belgrave Street, S.W.1.

Arches in walls frequently fail because insufficient provision is made to resist the thrust. The flatter the arch the greater the thrust. A very simple rule to find the thrust approximately is $T = \frac{WL}{8R}$ where T is the Thrust, W the load upon the arch including its own weight; if taken in cwts. the thrust will be in cwts. L is the span in feet from centre to centre of the skewbacks, R is the rise of the arch in feet. It is supposed by some architects and builders that because a semicircular arch has horizontal abutments there is no thrust, but this is not correct, as an application of the above rule will show.

I have been asked on many occasions to examine the roofs of small churches, assembly rooms, and similar buildings, etc., showing signs of failure from the same cause, viz. collar beam trusses with weakness at the junction of rafter and collar, permitting a spreading at the foot that was thrusting out the wall and buttress. Although a collar beam truss looks the simplest of all, it is a difficult one to calculate owing to the leverage of the lower end of the rafters. I studied the subject for ten years before I could evolve a satisfactory stress diagram. It is shown in my *Mechanics of Building Construction*, pp. 85-87, where a full analysis is given. In nearly all the above cases security was gained by bolting up a bar of iron to the underside of the rafter and partly along the collar, but the size varied according to the circumstances. Buttresses require more careful calculation than they often get.



They seem, in many cases, to have been looked upon as piers carrying a top load, or to have been designed for appearance only. When a buttress is required at all it is most important that it should be adequate for the work it has to perform.

I was consulted in a case of a warehouse proposed to be built near the River Thames on doubtful soil, and I recommended a thick concrete raft with old rails bedded transversely to the walls. The building was erected, and shortly afterwards several cracks appeared in the upper part of some of the walls. Of course, it was supposed that the raft had yielded, but on investigation it was found that the raft was intact and level. The cracks appear to have been due to unequal settlement of the brickwork, but it was altogether a mysterious case. All brickwork should be carried up within 3 ft. of the same level if possible, as far as it extends, so that the settlement may be uniform. If one part is carried much higher than the rest it will have set before the other reaches the same level.

A small retaining wall having recently failed in a London suburb, it is thought that particulars will be useful to readers of THE ARCHITECTS' JOURNAL, as it is typical of many similar failures that have taken place from time to time. A cross section of the wall is given in the diagram. There is no batter on the outside.

The joint at A is clearly the weakest part. Assume brickwork to weigh 120 lb. cub. ft. and earth 100 lb. cub. ft. The thrust over any portion per ft. run will be $T=\frac{1}{2}wh^2\frac{1-sin.\theta}{1+sin.\theta}$. With a natural slope of 36 deg. $\frac{1-sin.\theta}{1+sin.\theta}=\cdot26$, then the constant for this wall will be $T=\frac{1}{2}\times100\times h^2\times\cdot26=13h^2$. Now for the stresses at joint A, the thrust above it is $T=13h^2=13\times(6\cdot75)^2=592$ lb. The *c.g.* for the part above A is as marked, and the weight of the brickwork is 1,178 lb. Then dropping a vertical through the *c.g.* and producing the line of thrust to cut it, we mark off to scale from the intersection 592 lb. for the thrust and 1,178 lb. for the weight, complete the parallelogram and produce the diagonal to cut the line of point A which it does at 4½ in. beyond the face of the wall. The actual stresses at the inner and the outer edges of joint A would be $\frac{W}{A}\pm\frac{M}{Z}=\frac{1,178}{1\cdot5}\pm\frac{1,178\times1\cdot125}{\frac{1}{6}\times1\times1\cdot5}=785\pm3,533$ =4,318 lb. sq. ft. compression and 2,748 lb. sq. ft. tension. The latter stress is, of course, quite inadmissible, and the failure might have been predicted with certainty.

LITERATURE

REINFORCED CONCRETE BRIDGES

This book is the outcome of considerable experience of reinforced concrete bridges, and can be thoroughly recommended. The author deals rationally with the stresses due to variations of temperature, shrinkage of concrete in setting and hardening, and movement of the abutments. This leads him to describe arches having various numbers of hinges, and the construction of temporary hinges. It also leads him to deal with various types of expansion joints, rocker, roller, and sliding bearings. Chapter iii, containing most of these problems, is, perhaps, the most interesting. The book contains examples which are worked out in detail, and requires a considerable mathematical and engineering training on the part of the reader. It finishes with a description of many existing bridges, which adds considerably to its general interest.

There is one aspect to which, so far as we can see, the author has not applied himself in the book, and that is the question of permanence and corrosion of reinforced concrete bridges. A large proportion of the weight of a concrete bridge is necessarily its own weight, and there is, therefore, a temptation to reduce this weight to a minimum by using very high percentages of reinforcement and skimping the cover of concrete which protects this reinforcement from corrosion. There is reason to suppose that with good design and execution, and where these temptations are sufficiently resisted, a concrete bridge may have a long life. There are, however, also many cases where corrosion of the reinforcement is at work, owing to insufficient cover and to cracking of the concrete due to a combination of the stresses set up by loading, with those set up by shrinkage. There is, unfortunately, reason to fear that discredit of the material may result from some of the latter examples, and if in a future edition the author could devote space to deal with this aspect of the problem, his already excellent book would, I think, still be further improved.

O. F.

Reinforced Concrete Bridges. By W. L. Scott. Crosby, Lockwood and Son. 42s. net.

THE STONEWORK AT THE HOUSES OF PARLIAMENT

The memorandum on the defective condition of the stonework at the Houses of Parliament may be taken as an authentic summing up of the science of stone preservation in England at the present time, for it is condensed from a lengthy and detailed report prepared by Sir Frank Baines, the Director of Works of His Majesty's Office of Works, after exhaustive inquiries into the whole question. The chemical, as well as the physical aspects of decay have been examined, and if no chemical nostrum is advocated for use in the present instance, it is not for lack of diligent investigation. The results of former inquiries have been passed under review, and the departure of modern opinion from them in some respects is carefully noted. Thus the 1861 committee reported that decay could not be attributed to face-bedding, and declared that the stone was more likely to decay in damp and sheltered situations than when fully exposed. "Later experience, however, has shown that face-bedding and the variable nature of the stone were largely responsible for the decay, and also that the more exposed parts of the building are, on the whole, showing the greatest signs of decay."

The special weakness of the Anston stone, of which the Houses of Parliament are built, is lucidly described in the part of the memorandum which deals with the cause of stone decay. Variations in the quality of the stone, and quarry vents, which were almost invisible when the stone was first hewn, have made their presence seen and felt as removal from quarry conditions and exposure to the atmosphere have brought about physical and chemical changes. Now these vents and cleavage planes are opening and allowing parts of the stonework to fall. The insistence in the pages of the memorandum on the necessity of properly placing each stone on its quarry bed is all the more valuable when it is remembered that a recently-issued book on stone decay and its treatment attributed practically all decay to bacterial action, and satirized those who believed "face-bedding" harmful.

Many of the excellent photographs which illustrate the memorandum deal with decay from this cause; others show the devastating effect of rusting iron, which has only been surrounded with a few inches of stonework. These photographs should bring with them a lesson to constructors of steel-frame and reinforced-concrete buildings which are in so many cases only perfunctorily clothed with a thin facing of stone or brick. It is difficult to realize that many of these exposed parts of the Houses of Parliament which have become so ruinous are only about seventy or eighty years old, and that an even shorter period will see the fall, or the preventive demolition, of many apparently substantial modern buildings.

The most excessively fractured details of the stonework are now being picked off to remove a very real element of danger, and, so vast is the group of buildings, no less than £40,300 have been expended on this work since 1914. Of this figure, scaffolding has accounted for £9,000. It is admitted that hand-picking alone is uneconomical on account of this high cost of scaffolding, and it merely denudes the building and leaves it open to the attacks of the weather. It is proposed, therefore, to reconstruct the missing or defective parts in Stancliffe stone, from one of the Darley Dale quarries in Derbyshire. This stone was mentioned favourably in connection with the original building of the Houses of Parliament, but seems to have been ruled out on account of its cost. In the Cloister Court, where Caen stone was used, it is proposed to repair the work in Chilmark stone, which has been used in the transept fronts and the Chapter House at Westminster Abbey. This cloister, by the way, is too seldom seen by the visitor. It is

largely original work belonging to St. Stephen's Chapel, but was added to and "restored" to fit in with the other parts of the Houses of Parliament. Exactly which bed of Chilmark stone it is intended to use is not stated, but it is claimed that "satisfactory strength can be obtained by careful selection at the quarry," and if this supervision is exercised in fact, the result should be satisfactory. It is noteworthy that in the items set out to make up the grand total of £1,062,350, there is no mention of any underpinning, shoring, or needling, and though in the course of the work some slips in the foundation will be found to need attention, it is a matter for very great congratulation that they are so insignificant as to escape notice, although the immense group of buildings is built on the riverside, and foundation trouble in the old palace is a matter of history.

The memorandum is a model of clearness, and is written in honest English, and not in the Babu jargon too often affected in official publications. The illustrations are well chosen, and are accompanied by lucid notes. The photographs have been prepared for their explanatory purpose with arrows pointing out the principal defects. The businesslike presentation of the report, and its obvious competence, should prevent any serious criticism of the proposed works of repair; but, in order that no dissatisfaction may arise, points of artistic moment are to be referred to the Fine Arts Commission for decision.

WILLIAM HARVEY

Memorandum on the Defective Condition of the Stonework at the Houses of Parliament and Proposals for its Restoration. Presented to Parliament by Command of His Majesty. London: His Majesty's Stationery Office. Price 1s. 3d.

A DUTCH MONOGRAPH ON DR. H. P. BERLAGE

In tracing the origins of the vigorous revival which has taken place in Dutch architecture in the past forty years, the names of Dr. P. J. Cuypers and of Dr. H. P. Berlage are outstanding. Dr. Cuypers was a leader in the neo-Gothic movement in Holland, but he was a protagonist of rational methods of building rather than of the dogma of style. He was able to express his ideas in buildings in such a way as to convey a message of hope and enthusiasm to his contemporaries, and by his reaction against the irrational expression of the nineteenth century he succeeded in reviving interest in the most lasting characteristics of traditional Dutch work, notably the fine handling of brickwork. But for Dr. Cuyper's pioneering it might not have been possible for men like Berlage to achieve yet a further advance. By the time Berlage appeared upon the architectural stage art of all kinds had become emancipated, and when, in 1898, he was commissioned by the municipality in Amsterdam to build the New Bourse, he had behind him nearly twenty years of accumulated experience and enthusiasm in architectural development. Through his Amsterdam Bourse Berlage has exercised a big influence in architecture, not only in Holland, but abroad; a much bigger influence than that exerted by Dr. Cuypers. It is for that reason that a study of his work is more particularly interesting as enabling the enthusiasts for modern work to trace the sources of a movement which is leaving no country completely untouched. Apart from this interest, however, it is questionable whether a monograph such as this illustrated volume, with its introduction in Dutch by Jan Gratama, has much real value from the standpoint of the English architect.

It is, perhaps, unfair to suggest that, had all Berlage's projects been executed, the Bourse would still have remained the finest monument to his ability. The new museum at the Hague, particularly in respect of its plan, perhaps makes a greater contribution to the science of modern design; but as regards the plastic conception of mass and detail this building and others, such as the First Church of Christ Scientist at the Hague, appear more mannered and less sincere. In these works Berlage seems to have left the lines of development which are suggested by the architecture of the Bourse, and to have been in turn influenced by current developments along the lines of Lloyd-Wright-Dutch, or purely Cubist conception. The façade of the museum, in particular, to our eyes represents a jumble of forms in which the mathematical basis of the Bourse proportions seem either to have been discarded or carried to a confused excess.

Many of Berlage's other buildings, particularly his domestic work, are foreign to our ideas of character and treatment. They are ungracious, too, in mass and detail, and the interest they excite is more respectful than enthusiastic. One is curious to discover what manner of office building, bridge, or Pantheon would be conceived by the creator of the Bourse, but the result, frankly, is disappointment, though it must be admitted that all of Berlage's designs, even the least successful, bear the hallmark of forceful personality.

The book which recounts his life and works is plentifully illustrated by photographs and drawings; the fact that the text is in Dutch scarcely detracts from its usefulness to those who would more closely study Berlage's achievements. But it is not unkind to state the belief that inevitable development has occurred in Holland and elsewhere since Berlage showed the way, and that this monograph of his work is to-day more valuable as a record than as a guide.

HOWARD ROBERTSON

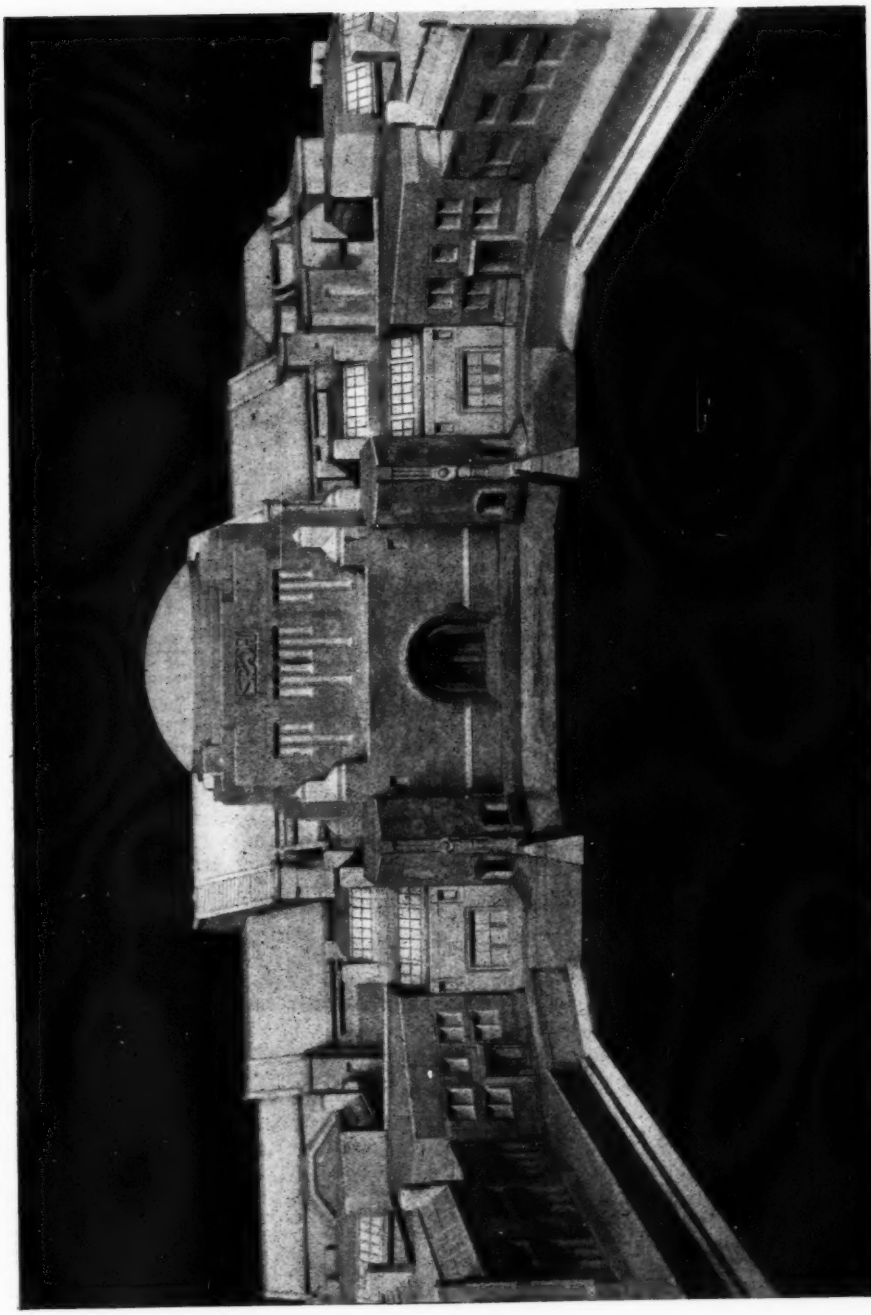
Dr. H. P. Berlage, Bouwmeester, with an Introduction by Jan Gratama. W. L. and J. Brusse, Rotterdam. Paper 10 florins, bound 12.50 florins.

LEEDS AND BRADFORD SURVEY

The preliminary report of the Leeds and Bradford Regional Joint Town Planning Committee has just been issued. This committee is composed of representatives of forty-three authorities. These cover an area of nearly a quarter of a million acres of an assessable value of £8,000,000, and with a population of over 120,000. The introduction to the report makes it clear how the phenomenal growth of road transport has forced authorities to look beyond their local needs. Goods, for example, are easily delivered in the region over thirty or forty miles radius. Long-distance routes which avoid congested centres show in three years increases of 70 per cent. to over 120 per cent. A diagram showing the movement of workers to and from Bradford and Leeds brings out strongly the curious interplay of town and country. It shows that while large numbers come from the smaller centres to work in these two cities, there are also large numbers who live in the cities and work in the smaller centres. In the latter case, the question arises whether this is due to the preference of the workers or to the need for more houses by the smaller authorities. If the former conclusion be accepted as the correct one, it would tend to show that English industrial towns are being subjected to the same social influences as now find expression in certain German municipalities, where the labourers go to the outskirts of a town for their work, while they choose to dwell in the centre; and, after all, there is a great deal to be said for such an arrangement provided that the town itself supplies the requisite social amenities and opportunities for recreation. This desire, which is felt by many people, for an urban existence is not yet sufficiently realized by our professional town planners, and it is possible that in consideration of it they will need to revise some of their favourite theories.

SMOKE ABATEMENT

Incredible as it may seem, there are even some architects who question the necessity of endeavouring to lessen the smoke emission from chimneys. Such an attitude is surprising enough in any thinking person in view of the fact that the evil caused by atmospheric pollution costs the nation one way and another, in fuel waste, in illness, in destruction to property, a figure which has been estimated at forty million pounds per annum. At the moment a sum of over a million pounds is needed to restore the stonework of the Houses of Parliament. According to the Smoke Abatement League, which has just published its seventh report, its work is severely handicapped through lack of funds.



A design for a municipal museum at The Hague. By H. P. Berlage. [*From* Dr. H. P. Berlage, Bouwmeester.]

CORRESPONDENCE

WHAT THE CLIENT THINKS

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—Anyone connected with the building trade to-day will agree with Sir Herbert Morgan that a modern building may be compared with a piece of mechanism, but as builders, too, must disagree when he complains of lack of co-operation between the builder and architect. The many buildings that have been erected in record time in recent years surely suggest a close co-operation to-day between client, architect, and builder. Why should Sir Herbert complain "that the builder should be relegated to the position of an assembler of materials which he has not chosen"? Surely this is the architect's prerogative, as it stands to reason different materials are suited to different designs, and the architect, owing to his training, should be the best judge of how his design should be materialized. Architects to-day are ever ready to listen to builders' ideas as to methods in carrying out work, and there is a far closer co-operation between the two in the interest of the client than Sir Herbert seems to imagine.

W. M. HILL

AUTHORITY AND LIBERTY IN ARCHITECTURE

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—In his letter of last week Mr. Penty says that "the assumption behind Mr. Edwards's remarks about civic architecture is that nobody ever gave any attention to the subject until the school which he represents came along." But surely I make no such claim when I extol the civic qualities which are present in the architecture of the past, and especially of that period between 1750 and 1820, so disliked by Mr. Penty. How could the creators of the lovely English streets of the eighteenth century have achieved their artistic triumphs if they had not given attention to the subject of civic architecture? Or how could the builders in the Early Renaissance and medieval periods have also achieved a certain standard of urbanity in design had they not also studied the principles which should govern the association of buildings in a street or township? No, it is not my contention that a regard for civic architecture is peculiar to myself or to the school which I represent, but that a flagrant disregard for it is characteristic of that group of propagandists of which Mr. Penty is one of the principal spokesmen. Mr. Penty would have it otherwise, but when he himself begins to speak about civic architecture he does not convince me that he yet understands the meaning of the words. For what constitutes a city is a group or association of buildings which, while expressing their appropriate differences in form and function, yet have a social relationship by virtue of which they become members of one large, but companionable, architectural family. The quality of civic architecture can never be expressed in one building by itself, any more than music can be expressed by the striking of one note upon a piano. Mr. Penty rather naïvely remarks that some idea of what he means by "civic architecture" "is to be gathered in the Stockholm Town Hall, which is a building that indicates to some extent the direction in which civic architecture might have gone in this country had we not abandoned our traditions." Civic architecture, however, cannot be present in a single building like a town hall, but depend for its existence upon the establishment of a convention regulating the relationship between the town hall and other buildings in its vicinity.

Mr. Penty asks me how my principles "can be applied to Nuremberg, to Chartres, or Mont St. Michel"? In the case of Chartres, it must be explained once more that what gives Chartres its civic quality is the fact that the cathedral, being of great importance, is justified in its very great architectural prominence, and the contrast between its gigantic structure and the comparatively small buildings huddled round it itself constitutes an impressive statement in terms of civic architecture. Again, in the case of Mont St. Michel, we have a very compact little township to which the contour of the hill happens to give a formal unity, while the church spire at the top is an admirable climax to the composition. As for Nuremberg, if I could resort to illustration I could point out to Mr. Penty very many examples of streets of that city in which the buildings are not only harmoniously related to each other, but which are themselves joined on to other streets in elaborately contrived and highly successful corner treatments. But while admitting the charm of these examples, I still maintain that it was the English, and the English alone, who expressed in civic architecture the very highest accomplishment. And what is specially remarkable in their achievement is that, not satisfied with the rustic or kindergarten style beloved of the Germans, or the somewhat regimentalized formality characteristic of much French urban architecture, they invented a unique and perfectly delightful blend of the formal and informal, a species of architecture marvellously urbane, yet free and easy and without the least self-consciousness. Such was the old Regent Street, the largest architectural composition in the world, the acme of metropolitan splendour, and yet not overbearing in its majesty, but light and gay and hospitable. I have nothing but the profoundest pity for Mr. Penty when he walked along old Regent Street and found it dull, but my pity is mixed with resentment that a body of doctrinaires, by their blindness, by their disparagement of the highest products of the national genius in civic architecture, should have deprived us of this masterpiece. Unfortunately, there are numerous other superb examples of street building which, because they have been continually sneered at for the last fifty years by the Gothic Revivalists and their spiritual descendants, are now in peril of destruction.

Mr. Penty's statement that I see "civic architecture as something proceeding from a drawing-board with a T-square, the rules of Vitruvius, and a volume of Batty Langley," is too absurd to merit refutation. I have never studied the rules of Vitruvius, and I have only turned over the pages of Batty Langley, and that casually, once in my life. But I have frequently stated that civic architecture is the expression of good manners in building, and this concept enables me to find pleasure in buildings of all styles which are imbued with the quality of sensitiveness to their environment. If Nash had designed Regent Street in the Gothic style we may be sure that the street would still have been an ornament to London, because even in that medium he would have given the shops exactly the right character and status and would have bound them together in a composition in which case the elements of unity and variety were properly inter-related.

Apparently Mr. Penty does not now dispute the fact that the work of the Gothic Revivalists was vulgar. He says it does not affect his position to admit it. I contend, however, that if he analysed the vulgarity of the Gothic revival and understood its true character, he would recognize that much of the domestic work of Norman Shaw, Philip Webb, and other apostles of the Arts and Crafts movement has the same vulgarity in an even more acute form. Mr. Penty talks about a return to native tradition. On that point at least we are agreed. I am in favour of a return to the great English tradition of civic architecture. It strikes me as rather amusing, however, that Mr. Penty thinks that this native tradition can best be rediscovered if we run with our sketch-books to America, France, Germany, and Sweden.

A. TRYSTAN EDWARDS

ANNOUNCEMENTS

Mr. Thomas F. McNamara, M.R.I.A.I., architect, has moved to 5 Dawson Street, Dublin. Telephone No.: 1051.

Messrs. Stratton Davis, Yates and Dolman, chartered architects, have moved to 12 Queen Street, Gloucester. Telephone No.: Gloucester 109. The firm also have an office in Parsonage Street, Dursley.

THE R.I.B.A. PRIZES AND STUDENTSHIPS

The following awards of prizes were made at a meeting of the R.I.B.A. on Monday night.

THE TITE PRIZE, A CERTIFICATE AND £50. (Sixty-four candidates took part in the preliminary competition, and fifteen were admitted to the final competition.)
MR. ERIC B. CUMINE, Architectural Association.

Certificates of honourable mention were awarded to:
MR. E. B. O'RORKE, Architectural Association.
MR. D. H. MCMORRAN.

THE VICTORY SCHOLARSHIP GOLD MEDAL AND £150. Thirteen candidates took part in the preliminary competition, and of these six were admitted to the final competition. In addition five candidates were admitted direct to the final competition.
MR. H. T. DYER, Russell Square, London, W.C.

Certificates of honourable mention were awarded to:
MISS JOANNA MACFADYEN. MR. D. H. BEATTY-POWNALL.
MR. R. P. CUMMINS.

THE GRISSELL GOLD MEDAL AND £50. (Three entrants.)
MR. E. C. P. ALLEN, Hampstead.

THE OWEN JONES STUDENTSHIP, A CERTIFICATE AND £100. (Two entrants.)
MISS RUTH ELLIS, Architectural Association.

THE HENRY SAXON SNELL PRIZE (£60). (Three entrants.)
MR. GRAHAM R. DAWBARN, Montague Street, London, W.C.

THE ROYAL INSTITUTE SILVER MEDAL FOR MEASURED DRAWINGS AND £75. (Seven entrants.)
MR. B. S. TEMPEST, Harrow-on-the-Hill.

Certificates of honourable mention were awarded to:
MR. R. O. VINE, Wood Green. MR. DANIEL ROTH, Bow.

THE PUGIN STUDENTSHIP, A SILVER MEDAL AND £75. (Six entrants.)
MR. T. M. ASHFORD, Architectural Association.

A certificate of honourable mention was awarded to:
MR. SYDNEY W. J. SMITH.

THE R.I.B.A. ESSAY PRIZE. One essay was submitted under the motto "Mikhailof."

The Silver Medal and £50 was not awarded.

THE GODWIN BURSARY AND WIMPERIS BEQUEST.
MR. J. MURRAY EASTON, Bedford Square, London.

THE R.I.B.A. (ALFRED BOSSOM) TRAVELLING STUDENTSHIP. (Four entrants.)

1. R.I.B.A. (ALFRED BOSSOM) SILVER MEDALS.
MR. E. H. ASHBURNER, B.Arch., Liverpool.
MR. B. W. R. THOMAS. MR. JOHN R. MOORE.

2. R.I.B.A. (ALFRED BOSSOM) TRAVELLING STUDENTSHIP AND GOLD MEDAL.
MR. E. WAMSLEY LEWIS, Regent's Park, London.

A certificate of honourable mention was awarded to:
MR. B. W. R. THOMAS.

THE ASHPITEL PRIZE, 1926.
MR. L. W. T. WHITE, Hull.

THE R.I.B.A. SILVER MEDAL FOR RECOGNIZED SCHOOLS.
MR. J. MORRISON, Aberdeen.

THE R.I.B.A. BRONZE MEDAL.
MR. S. B. O'RORKE, Architectural Association.

A CORRECTION

Messrs. Higgs & Hill, Ltd., ask us to correct an error which appeared in their advertisement published in our issue for January 5. In this advertisement the design of Messrs. Swan & Edgar's premises in Regent Street was attributed to Mr. J. J. Joass. The elevations of the whole of the buildings in the Quadrant, including Messrs. Swan & Edgar's premises, were designed by Sir Reginald Blomfield, R.A. Messrs. Swan & Edgar appointed Mr. J. J. Joass as their architect, who has been responsible for their rebuilding and the interior design.

COMPETITION CALENDAR

The conditions of the following competitions have been received by the R.I.B.A.

January 25. **Conference Hall, for League of Nations, Geneva. 100,000 Swiss francs to be divided among architects submitting best plans. Sir John Burnet, R.A., British representative on jury of assessors.**

June 15. Shakespeare National Memorial Theatre, Stratford-upon-Avon. The Competition is open to architects of the British Isles and America. It will be in two sections—a preliminary competition for sketch design only, from which six designs will be selected by the assessors; each of the selected competitors will be paid £100 premium towards the cost of preparing a further more detailed design, which will form the second half of the competition. The selected architect will be paid in accordance with the Schedule of Charges sanctioned by the R.I.B.A. Particulars, with site plan, etc., from the Secretary, Shakespeare Memorial Theatre, Stratford-upon-Avon. Deposit £1 1s. (which will be refunded should the Conditions be returned within one month).

June 30. Designs for the planning of the Civic Centre, Birmingham Assessor, Mr. H. V. Lanchester, F.R.I.B.A. Premium of £1,000 to the design placed first, and a further sum not exceeding £1,000 divided between the authors of other approved designs. Particulars from Mr. Herbert H. Humphries, M.INST.C.E., City Engineer and Surveyor. Deposit £1 1s., which will be returned after the receipt of a design or the return of the documents supplied.

No date. Incorporated Architects in Scotland: 1: Rowand Anderson Medal and £100; City Art Gallery and Museum; 2: Rutland Prize (£50) for Study of Materials and Construction; 3: Prize (£10 to £15) for 3rd-year Students in Scotland; 4: Maintenance Scholarship. £50 per annum for 3 years. Particulars from Secretary of the Incorporation, 15 Rutland Square, Edinburgh.

The conditions of the following competition have not as yet been brought to the notice of the R.I.B.A.

No date. Town Hall and Library, Leith. Assessor, Sir George Washington Browne, R.S.A. Particulars from the City Chambers, Edinburgh.

THE RUGBY IMPERIAL RADIO STATION

Following are the names of the contractors and sub-contractors for H.M. Radio Station at Hillmorton, near Rugby, illustrated on pages 133 to 138. General contractor, Chessums, Ltd., Tottenham. Clerk of works, Mr. Howard. Chief foreman, Mr. Smith. Contract price: Cost of building works, including roads, garage, water tower, drainage, fencing, residences, etc., £64,000, exclusive of masts, electrical equipment, heating, lighting and engineering services generally. Sub-contractors: Birmingham and Midland Counties Val de Travers Asphalt Paving Co., Ltd., Birmingham, asphalt; Buckley Junction Metallic Brick Co., facing bricks; Wilford & Co., common bricks; Frank Mortimer, Ltd., London, Portland stone; Stuarts Granolithic, Ltd., London, artificial stone; Dorman Long & Co., Middlesbrough, structural steel; Williams and Williams, Chester, steel sashes; F. Braby & Co., London, copper hoods, etc.; Siegwart, London, fireproof construction; Roberts Adlard, London, slates; Permanite, Ltd., London, patent roofing felt; Higginbotham and Sons, Bradford, glass and plumbing; W. H. Heywood, Ltd., Huddersfield, patent glazing; G. Farmiloe and Son, London, cast lead; "Novoid," waterproofing material; E. Archer and Son, Northampton, special timber walking ways to inductances; G. W. Palmer & Co., Merton Abbey, wrought-iron railings; Albany Forge Wainwright and Waring, wrought-iron entrance gates; Carron, Ltd., London, stoves, grates, and iron staircases; Lockerbie and Wilkinson, Ltd., Tipton, wrought-iron and bronze lamps and brackets and door furniture; Doulton & Co., Pickup, Adamsez, Ltd., J. Duckett and Sons, sanitary fittings; Dennison Kett & Co., London, fireproof doors; J. Routhorn, Northampton, plastering; W. and R. Leggott, London, window gearing and bronze grilles; Carter & Co., London, tiling; Parker, Winder and Achurch, fencing; Supplies Division, H.M. Office of Works, office fittings and furniture.

LAW REPORTS

ALLEGED BREACH OF COVENANT

Van Minden v. *Criterion Restaurants, Ltd. King's Bench Division. Before Mr. Justice Greer*

In this case the plaintiff, Mr. Van Minden, sought to recover from the Criterion Restaurants Ltd., damages for alleged breach of covenant.

Mr. Rayner Goddard, K.C., and Mr. Elkin appeared for the plaintiff, and Mr. W. E. Done represented the defendants.

Mr. Rayner Goddard said his client was a tobacconist, and his claim was under a lease of July last year, under which the defendants let him a shop in the Criterion Buildings under a 21 years lease at a yearly rental of £300. His case was that under certain representations from the Secretary of the defendant Company, that the door abutting onto the premises was an emergency exit only for the basement, his client took the lease. As a matter of fact, the door was used both for ingress and egress by the staff of a club carried on by the lessees of the basement and other persons, for taking in goods and produce used in a licensed restaurant and bringing out soiled linen and empty beer crates. The door was in a small lobby about five feet square. Plaintiff complained that on seeing the state of the lobby and the persons passing through an intending customer would not enter the shop. The traffic through the door was continuous throughout the day and amounted to a serious interference with the plaintiff's business.

Mr. Done for the defendants, denied that there had been any representation to the plaintiff, and his case was that plaintiff took the premises with the knowledge that the door was to be used as a back entrance to the club and it had been used for that purpose and no other. It had not been used in such a way as to cause physical interference to plaintiff's premises and did not constitute a nuisance. Under the agreement between the defendants and the club the latter were not to use the door for goods after half-past ten in the morning, till the evening.

His Lordship found for the defendant Company with costs. In the course of his judgment his Lordship said he was satisfied that the Secretary of the defendant Company did know that the club had a title to use the door in question, and that before plaintiff had his lease, he had been definitely informed that the door was a back door for the club for ordinary purposes. He came to the conclusion that the plaintiff had not got an absolute implied right of way the same as it would have been if there had been nobody else there who to his knowledge would be using it, but he got a kind of right of way one found in leases of that sort, viz., a right of way subject to the user of this being the landlord and the other tenants, and that involved that it was subject to the rights of the club to use it for the purpose of a back door. That was the plaintiff's position after he took the lease. There was considerable force in the argument of Mr. Rayner Goddard that what happened was a breach of covenant for quiet enjoyment contained in the lease and that it was also a nuisance. As to nuisance, in his judgment, user as far as it was permitted by the defendants was not a nuisance at all nor was it a breach of covenant for quiet enjoyment. He was satisfied the defendants were not responsible for what their tenants did against their consent and against their complaints. There was nothing here which amounted in law to a nuisance. The user was not favourable to the plaintiff, but did not give him cause for the action. Judgment for defendants with costs.

ROAD REPAIRS

New Barnet District Council v. *Owners of Property. Court of Appeal. Before the Master of the Rolls and Lords Justices Atkin and Lawrence*

This matter came before the Court on an appeal, *ex-parte*, from a decision of Mr. Justice Clausen, sitting in the Chancery Division.

Mr. Owen Thompson, K.C., in support of the appeal, said the question raised was an important one as to the powers of a council to serve notices upon "owners" as "owners," without giving any names, in regard to statutory charges for road repairs. It appeared that the New Barnet District Council had incurred an expenditure on a road adjoining unbuilt-upon land, and the repairs were completed in May, 1923, and the surveyor made his apportionment of the charges in November, 1925. The persons liable for the charges were the owners of the land at the time the work was completed, but as it was not known whom those owners were the Council had issued writs merely upon owners without names or addresses, Mr. Justice Clausen had refused to allow an amendment of those writs by indicating that the owners were the owners at the time of the completion of the work, and decided that there was no power to issue a writ so vague in its terms either as it originally stood or as it was now proposed to be amended. The matter was an important one, and the Council decided to appeal and take the decision of that Court.

The Court dismissed the appeal, holding that the decision of the learned judge was a correct view of the law.

ALLEGED OBSTRUCTION OF HIGHWAY

Attorney-General v. *Camden. King's Bench Division. Before Mr. Justice Roche*

This matter came before the Court on a motion by the Attorney-General, on the relation of the Rural District Council of Cricklade and Wootton Bassett, in default of defence by the defendant, for a declaration that Phelps Lane, Wootton Bassett, was a public highway, for a mandatory injunction to remove a bungalow erected there by the defendant, together with the posts and fencing, and further for an injunction to restrain the defendant from obstructing the highway or preventing the public having free use of it.

Mr. Tucker, for the plaintiffs, said the defendant had erected a bungalow on the verge of the highway, and it had proved an obstruction. The highway was an old one, and it had been metalled in the centre. The defendant, a few years ago, purchased the whole of the lane, which included the waste on each side, and he at once conceived the idea that the waste was not part of the highway, and during a time of acute house shortage he erected a bungalow on the waste at one end of the lane. He was not given permission, but, owing to the housing shortage, the Council did not interfere. As soon as defendant proceeded to erect posts and rails over the verge preventing people driving cattle on to the land and using the lane, he was given notice that if he would remove the other obstructions the Council would be content with the bungalow remaining. The defendant, however, took no notice, and the plaintiffs were compelled to come to Court.

His lordship granted the declaration sought by the plaintiffs, with costs against the defendant.

COMPULSORY ACQUISITION OF LAND

Northwood and Barclay Perkins & Co., Ltd. v. *The London County Council. King's Bench Divisional Court. Before Justices Salter and Talbot*

This matter came before the Court on a motion to set aside an award made, in the form of a special case, by Sir Anker Simmons, an official arbitrator under the Acquisition of Land, Assessment of Compensation Act, 1919, and in an arbitration between the parties. It arose out of the London County Council's compulsory acquisition of certain land, as well as premises known as the "Freemasons' Arms," a fully-licensed house, in Pereira Street, Bethnal Green. Messrs. Barclay Perkins & Co., Ltd., appeared in the case as mortgagees of the land and premises, and Mr. Northwood, who was the lessee of the land and premises, and licence holder, as the claimant.

Mr. Robertson, for the applicants, Mr. G. J. Northwood and Messrs. Barclay Perkins & Co., Ltd., said his submission was that the award was bad in law on the face of it. The arbitrator had stated a special case for the opinion of the Divisional Court, and when it came before the Lord Chief Justice and Justices Salter and Branson, the decision was against the applicants. The contention of counsel was that that decision was wrong in law, and as that decision was incorporated in the award, he therefore argued that the award was bad in law.

Mr. Wm. Allen, for the London County Council, submitted that the decision of the former Divisional Court was final and binding.

Justices Salter and Talbot agreed with this view and dismissed the motion with costs.

THE WEEK'S BUILDING NEWS

Enlargement of Bermondsey Library

The Bermondsey central public library is to be enlarged.

1,230 Houses for Bradford

The Bradford Corporation is to erect 880 houses by contract and 350 by direct labour.

More Houses for Twickenham

Three hundred houses are to be erected on the Twickenham estate of the Carpenters' Company.

Widening of an Epping Road

The main road from Epping Town to the "Wake Arms" is to be widened at a cost of £34,000.

More Houses for Leeds

The Leeds Corporation has decided to build 800 houses on the York and Selby Road housing estate.

Bridgwater Housing Sites

The Bridgwater Rural District Council has purchased sites for the erection of fifty houses in various parishes in the district.

Eight Schools for Essex

The Essex County Council is building eight schools, at a cost of £29,000 each, making a sum total of £232,000.

Plans Passed at Leyland

At a meeting of the Leyland Urban Council plans of forty-one houses and bungalows were passed.

More Houses for Swanscombe

The Swanscombe Urban District Council proposes building forty-eight more houses on the Milton Street estate.

Technical School for Kiveton Park

The Kiveton Park Rural District Council, Yorks, has approved plans for the erection of a technical school at Dinnington at a cost of £23,000.

A New Police Station for Newcastle

It was agreed at a meeting of Newcastle Watch Committee to proceed with the scheme for the building of a new police station, etc., in the Pilgrim Street area.

A Woolworth Building for Manchester

The Building and Improvements Committee of the Manchester City Council has approved the revised plans for Messrs. Woolworth's new building to be erected on the site of the Albion Hotel.

The Royal Veterinary College

To rebuild the Royal Veterinary College, Camden Town, N.W., an appeal has been issued for £50,000. The Government has already promised £35,000 provided the college can raise a similar amount.

Mining Institute for Caerphilly

A new Mining Institute is about to be erected at Caerphilly, and a new Council school near Llantrisant, by the Glamorgan Education Committee, under the supervision of Mr. D. Pugh Jones, F.R.I.B.A.

Conversion of Newstead Abbey

Newstead Abbey, near Mansfield, Nottinghamshire, and its estate are undergoing a great change. Builders are at work upon a scheme for making the historic home of the poet Byron into apartments to accommodate families.

Housing at Reigate

At the meeting of the Reigate Rural District Council the committee reported that of the 300 houses to be erected by private enterprise, the Ministry of Health subsidy had been promised in respect of 297.

A Power Station for Birmingham

A contract for a super power station, which will be one of the largest in the country, has been placed by the Birmingham Electric Supply Committee. The contract amounts to £1,400,000.

Southampton Dock Scheme Launched

A start has been made on the scheme of the Southern Railway Company for the extension of the docks at Southampton, which will cost £3,000,000. The same company is also to have erected a new station at Wimbledon to cost £250,000.

Burnley Housing

The General Purposes Committee of Burnley Town Council has approved of a recommendation to incur capital expenditure in the construction of eighty-eight more houses on the Stoops Farm site at an estimated cost of £40,128.

Wallasey Promenade Extension Scheme

For the purpose of acquiring a portion of the Mersey foreshore, Wallasey Corporation is seeking permission to borrow £27,000. This is a preparatory step to making a commencement with an extensive promenade extension scheme.

A Swimming Bath for Southgate

At a meeting of the Southgate Urban District Council the Baths Committee presented a lengthy report on the subject of the swimming bath proposed to be constructed in the New Southgate district. The committee has instructed the surveyor to prepare plans and estimates for a covered-in bath 132 ft. in length and 40 ft. in breadth, with gallery, and ten or twelve slipper baths, to be constructed on the site north of Bowes Road, New Southgate.

Purchase of a Darlington Site

An offer to buy a fifty-eight acre site on the Cockerton housing estate for industrial purposes was accepted at a meeting of Darlington Town Council, subject to the approval of the Ministry of Health. The purchasers intend to erect works several stories in height on the site.

Monmouth Trunk Road Scheme

The Ministry of Health has refused to sanction a further loan for the trunk road scheme between Cardiff and Newport costing £200,000. Part of the work is already completed, and the Monmouthshire County Council is asking the Minister to receive a deputation.

Barnsley Waterworks Scheme

The Barnsley Town Council at a special meeting unanimously decided to promote in the next session of Parliament a Bill to empower the Corporation to construct additional waterworks at an estimated cost of £362,000. The decision has been subsequently approved by a ratepayers' meeting.

Extensions to the Old Vic

Extensive alterations are to be made at the Old Vic Theatre during the coming summer. The chief alterations are to be in the provision of extra staircases and approaches to comply with the requirements of the London County Council. Altogether it means an expenditure of from £10,000 to £15,000.

A Day Nursery for Wimbledon

The Maternity and Child Welfare Committee of the Wimbledon Borough Council reports that the borough surveyor has submitted a sketch plan of a day nursery to be erected on land in Hubert Road.

Reconstruction of Sloane Square Station

Sloane Square Station is to be brought up to date. The scheme of reconstruction includes the replacement of the existing surface buildings by a structure of Portland stone modelled on the lines of the stations on the Morden line. Passimeters and escalators will be installed; attractive shops and bright-looking halls will be built.

Leeds Tram Depot Extension

The Leeds Corporation Tramways Committee has approved plans submitted by Mr. H. S. Chorley, architect, for an extension of the Swinegate tram and bus depot at the estimated cost of £122,500. The question of applying to the Minister of Transport for sanction to borrow the sum of £137,500 has been referred to the Finance and Parliamentary Committee.

RATES OF WAGES

			I	II
			s. d.	s. d.
A	ABERDARE	S. Wales & M.	1 8	1 3½
A₁	Abergavenny	S. Wales & M.	1 7½	1 2½
B	Abingdon ..	S. Counties	1 6	1 1½
A	Accrington	N.W. Counties	1 8	1 3½
A₂	Addlestone	S. Counties	1 6½	1 2
A	Adlington	N.W. Counties	1 8	1 3½
A	Airdrie ..	Scotland	•1 8	1 3½
C₁	Aldeburgh	E. Counties	1 4	1 0½
A	Altrincham	N.W. Counties	1 8	1 3½
B₂	Appleby ..	N.W. Counties	1 4½	1 0½
A	Ashton-under-Lyne	N.W. Counties	1 8	1 3½
A₂	Atherstone	Mid. Counties	1 6½	1 2
B₂	Aylesbury ..	S. Counties	1 4½	1 0½
B₂	BANBURY	S. Counties	1 4½	1 0½
B₂	Bangor ..	N.W. Counties	1 5	1 1
A	BarnardCastle	N.E. Coast	1 8	1 3½
A	Barnsley ..	Yorkshire	1 8	1 3½
B₁	Barnstaple	S.W. Counties	1 5½	1 1½
A	Barrow ..	N.W. Counties	1 8	1 3½
A	Barry ..	S. Wales & M.	1 8	1 3½
B₂	Basingstoke	S.W. Counties	1 4½	1 0½
B	Bath ..	S.W. Counties	1 6	1 1½
A	Batley ..	Yorkshire	1 8	1 3½
B	Bedford ..	E. Counties	1 6	1 1½
A₂	Berwick-on-Tweed	N.E. Coast	1 7	1 2½
A₂	Bewdley ..	Mid. Counties	1 7	1 2½
B₂	Bicester ..	Mid. Counties	1 4½	1 0½
A	Birkenhead	N.W. Counties	†1 9	1 3½
A	Birmingham	Mid. Counties	1 8	1 3½
A	Bishop Auckland	N.E. Coast	1 8	1 3½
A	Blackburn	N.W. Counties	1 8	1 3½
A	Blackpool	N.W. Counties	1 8	1 3½
A	Blyth ..	N.E. Coast	1 8	1 3½
B₂	Bognor ..	S. Counties	1 4½	1 0½
A	Bolton ..	N.W. Counties	1 8	1 3½
A₂	Boston ..	Mid. Counties	1 6½	1 2
B₁	Bournemouth	S. Counties	1 6	1 1½
A	Bradford ..	Yorkshire	1 8	1 3½
A₂	Brentwood	E. Counties	1 6½	1 2
A	Bridgend ..	S. Wales & M.	1 8	1 3½
B₂	Bridgwater	S.W. Counties	1 5	1 1
A₁	Bridlington	Yorkshire	1 7½	1 2½
A	Brighouse	Yorkshire	1 8	1 3½
B₁	Brighton ..	S. Counties	1 6	1 1½
A	Bristol ..	S.W. Counties	1 8	1 3½
B₂	Brixham ..	S.W. Counties	1 4½	1 0½
A₂	Bromsgrove	Mid. Counties	1 7	1 2½
C	Bromyard ..	Mid. Counties	1 4	1 0½
A	Burnley ..	N.W. Counties	1 8	1 3½
A	Bursiem ..	Mid. Counties	1 8	1 3½
A₂	Burton-on-Trent	Mid. Counties	1 7	1 2½
A	Bury ..	N.W. Counties	1 8	1 3½
A₁	Buxton ..	N.W. Counties	1 7½	1 2½
B	CAMBRIDGE	E. Counties	1 6	1 1½
B₂	Canterbury	S. Counties	1 4½	1 0½
A	Cardiff ..	S. Wales & M.	1 8	1 3½
A	Carlisle ..	N.W. Counties	1 8	1 3½
B	Carmarthen	S. Wales & M.	1 6	1 1½
B₂	Carnarvon	N.W. Counties	1 5	1 1
A₁	Carnforth ..	N.W. Counties	1 7½	1 2½
A	Castleford	Yorkshire	1 8	1 3½
B₁	Chatham ..	S. Counties	1 5½	1 1½
B₁	Chelmsford	E. Counties	1 5½	1 1½
B	Cheltenham	S.W. Counties	1 6	1 1½
A	Chester ..	N.W. Counties	1 8	1 3½
A	Chesterfield	Mid. Counties	‡1 8	1 3½
B₂	Chichester	S. Counties	1 4½	1 0½
A	Chorley ..	N.W. Counties	1 8	1 3½
B₂	Cirencester	S. Counties	1 5	1 1
A	Clitheroe ..	N.W. Counties	1 8	1 3½
A	Clydebank	Scotland	1 8	1 3½
A	Coalville ..	Mid. Counties	1 8	1 3½
B₁	Colchester ..	E. Counties	1 5½	1 1½
A	Colne ..	N.W. Counties	1 8	1 3½
B₁	Colwyn Bay	N.W. Counties	1 5½	1 1½
A	Consett ..	N.E. Coast	1 8	1 3½
B₁	Conway ..	N.W. Counties	1 5½	1 1½
A	Coventry ..	Mid. Counties	1 8	1 3½
A₂	Crewe ..	N.W. Counties	1 6½	1 2
A₂	Cumberland	.....	1 6½	1 2
A	DARLINGTON	N.E. Coast	1 8	1 3½
A	Darwen ..	N.W. Counties	1 8	1 3½
B₂	Deal ..	S. Counties	1 4½	1 0½
B₁	Denbigh ..	N.W. Counties	1 5½	1 1½
A	Derby ..	Mid. Counties	1 8	1 3½
A	Dewsbury	Yorkshire	1 8	1 3½
B	Didcot ..	S. Counties	1 6	1 1½
A	Doncaster	Yorkshire	1 8	1 3½
C₁	Dorchester	S.W. Counties	1 4	1 0½
A₂	Driffield ..	Yorks	1 6½	1 2
A₂	Droitwich	Mid. Counties	1 6½	1 2
A₁	Dudley ..	Mid. Counties	1 7½	1 2½
A	Dundee ..	Scotland	1 8	1 3½
A	Durham ..	N.E. Coast	1 8	1 3½
B₁	EAST-BOURNE	S. Counties	1 6	1 1½
A	Ebbw Vale	S. Wales & M.	1 8	1 3½
A	Edinburgh	Scotland	1 8	1 3½
A	E. Glamorganshire & Monmouthshire	S. Wales & M.	1 8	1 3½
B	Exeter ..	S.W. Counties	§1 7	1 2½
B₂	Exmouth ..	S.W. Counties	1 5	1 1
B	FELIXSTOWE	E. Counties	1 6	1 1½
A₂	Filey ..	Yorks	1 6½	1 2
A	Fleetwood ..	N.W. Counties	1 8	1 3½
B₂	Folkestone	S. Counties	1 4½	1 0½
A	Frodsham	N.W. Counties	1 8	1 3½
B₂	Frome ..	S.W. Counties	1 4½	1 0½
A	GATESHEAD	N.E. Coast	1 8	1 3½
B₁	Gillingham	S. Counties	1 5½	1 1½
B	Gloucester	S.W. Counties	1 6	1 1½
A₂	Goole ..	Yorkshire	1 7	1 2½
B	Gosport ..	S. Counties	1 6	1 1½
A₂	Grantham	Mid. Counties	1 6½	1 2
A₁	Gravesend	S. Counties	1 7½	1 2½
A	Greenock ..	Scotland	•1 8	1 3½
A	Grimsby ..	Yorkshire	1 8	1 3½
B₁	Guildford ..	S. Counties	1 5½	1 1½
A	HALIFAX ..	Yorkshire	1 8	1 3½
A	Hanley ..	Mid. Counties	1 8	1 3½
A	Harrogate	Yorkshire	1 8	1 3½
A	Hartlepools	N.E. Coast	1 8	1 3½
B₂	Harwich ..	E. Counties	1 5	1 1
B₂	Hastings ..	S. Counties	1 4½	1 0½
B₁	Hatfield ..	S. Counties	1 5½	1 1½
B	Hereford ..	S. W. Counties	1 6	1 1½
B	Hertford ..	E. Counties	1 5½	1 1½
A₁	Heysham	N.W. Counties	1 7½	1 2½
A	Howden ..	N.E. Coast	1 8	1 3½
A	Huddersfield	Yorkshire	1 8	1 3½
A	Hull ..	Yorkshire	1 8	1 3½

The initial letter opposite each 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	II
			s. d.	s. d.
A	ILKLEY ..	Yorkshire	1 8	1 3½
A	Immingham	Mid. Counties	1 8	1 3½
B	Ipswich ..	E. Counties	1 6	1 1½
C₁	Isle of Wight	S. Counties	1 4	1 0½
A	JARROW ..	N.E. Coast	1 8	1 3½
A	KEIGHLEY	Yorkshire	1 8	1 3½
B₂	Kendal ..	N.W. Counties	1 5	1 1
B₂	Keswick ..	N.W. Counties	1 5	1 1
B	Kettering ..	Mid. Counties	1 6	1 1½
A₂	Kidderminster	Mid. Counties	1 7	1 2½
B₂	King's Lynn	E. Counties	1 5	1 1
A	LANCASTER	N.W. Counties	1 8	1 3½
A₂	Leamington	Mid. Counties	1 6½	1 2
A	Leeds ..	Yorkshire	1 8	1 3½
A	Leek ..	Mid. Counties	1 8	1 3½
A	Leicester ..	Mid. Counties	1 8	1 3½
A	Leigh ..	N.W. Counties	1 8	1 3½
B₂	Lewes ..	S. Counties	1 4½	1 0½
A₂	Lichfield ..	Mid. Counties	1 6½	1 2
A	Lincoln ..	Mid. Counties	1 8	1 3½
A	Liverpool ..	N.W. Counties	‖1 10	1 4½
B	Llandudno	N.W. Counties	1 5½	1 1½
A	Llanelly ..	S. Wales & M.	1 8	1 3½
	London (12 miles radius)		1 9½	1 4½
	Do. (12-15 miles radius)		1 9	1 4
A	Long-Eaton	Mid. Counties	1 8	1 3½
A	Loughborough	Mid. Counties	1 8	1 3½
B	Luton ..	E. Counties	1 6	1 1½
A	Lytham ..	N.W. Counties	1 8	1 3½
A₁	MACCLESFIELD	N.W. Counties	1 7½	1 2½
B	Maidstone	S. Counties	1 5½	1 1½
A₂	Malvern ..	Mid. Counties	1 6½	1 2
A	Manchester	N.W. Counties	1 8	1 3½
A	Mansfield ..	Mid. Counties	1 8	1 3½
B₂	Margate ..	S. Counties	1 4½	1 0½
A₂	Matlock ..	Mid. Counties	1 6½	1 2
A	Merthyr ..	S. Wales & M.	1 8	1 3½
A	Middlesbrough	N.E. Coast	1 8	1 3½
A₂	Middlewich	N.W. Counties	1 6½	1 2
A	Monmouth S. and E. Glamorganshire	S. Wales & M.	1 8	1 3½
A₁	Morecambe	N.W. Counties	1 7½	1 2½
A₂	NANTWICH	N.W. Counties	1 6½	1 2
A	Neath ..	S. Wales & M.	1 8	1 3½
A	Nelson ..	N.W. Counties	1 8	1 3½
A	Newcastle	N.E. Coast	1 8	1 3½
A	Newport ..	S. Wales & M.	1 8	1 3½
A	Normanton	Yorkshire	1 8	1 3½
A₂	Northampton	Mid. Counties	1 7	1 2½
A	North Staffs.	Mid. Counties	1 8	1 3½
A	North Shields	N.E. Coast	1 8	1 3½
B	Norwich ..	E. Counties	1 6	1 1½
A	Nottingham	Mid. Counties	1 8	1 3½
A	Nuneaton ..	Mid. Counties	1 8	1 3½
B	OAKHAM ..	Mid. Counties	1 5½	1 1½
A	Oldham ..	N.W. Counties	1 8	1 3½
A₂	Oswestry ..	Mid. Counties	1 6½	1 2
B	Oxford ..	S. Counties	1 6	1 1½
A	PAISLEY ..	Scotland	•1 8	1 3½
C	Pembroke	S. Wales & M.	1 4½	1 0½
A	Perth ..	Scotland	•1 8	1 3
A₂	Peterborough	Mid. Counties	1 6½	1 2
A	Plymouth	S.W. Counties	¶1 8	1 3½
A	Pontefract	Yorkshire	1 8	1 3½
A	Pontypridd	S. Wales & M.	1 8	1 3½
B	Portsmouth	S. Counties	1 6	1 1½
A	Preston ..	N.W. Counties	1 8	1 3½
A	QUEENSFERRY	N.W. Counties	1 8	1 3½
B	READING ..	S. Counties	1 6	1 1½
B	Reigate ..	S. Counties	1 5½	1 1½
A₂	Retford ..	Mid. Counties	1 6½	1 2
A	Rhondda Valley	S. Wales & M.	1 8	1 3½
A₂	Ripon ..	Yorkshire	1 6½	1 2
A	Rochdale ..	N.W. Counties	1 8	1 3½
B	Rochester	S. Counties	1 5½	1 1½
A₁	Ruabon ..	N.W. Counties	1 7½	1 2½
A₂	Rugby ..	Mid. Counties	1 8	1 3½
A₂	Rugeley ..	Mid. Counties	1 6½	1 2
A	Runcorn ..	N.W. Counties	1 8	1 3½
A₂	ST. ALBANS	E. Counties	1 6½	1 2
A	St. Helens	N.W. Counties	1 8	1 3½
A₁	Scarborough	Yorkshire	1 7½	1 2½
A	Scunthorpe	Mid. Counties	1 8	1 3½
A	Sheffield ..	Yorkshire	1 8	1 3½
A	Shipley ..	Yorkshire	1 8	1 3½
A₂	Shrewsbury	Mid. Counties	1 6½	1 2
A₂	Skipton ..	Yorkshire	1 7	1 2½
B	Slough ..	S. Counties	1 5½	1 1½
A₂	Solihull ..	Mid. Counties	1 7	1 2½
B	South'pton	S. Counties	1 6	1 1½
B₁	Southend-on-Sea	E. Counties	1 5½	1 1½
A	Southport	N.W. Counties	1 8	1 3½
A	S. Shields ..	N.E. Coast	1 8	1 3½
A₂	Stafford ..	Mid. Counties	1 7	1 2½
A	Stockport ..	N.W. Counties	1 8	1 3½
A	Stockton-on-Tees	N.E. Coast	1 8	1 3½
A	Stoke-on-Trent	Mid. Counties	1 8	1 3½
B	Stroud ..	S.W. Counties	1 5½	1 1½
A	Sunderland	N.E. Coast	1 8	1 3½
A	Swansea ..	S. Wales & M.	1 8	1 3½
B	Swindon ..	S.W. Counties	1 6	1 1½
A₁	TAMWORTH	N.W. Counties	1 7½	1 2½
B₁	Taunton ..	S.W. Counties	1 5½	1 1½
A	Teeside Dist.	N.E. Counties	1 8	1 3½
A	Todmorden	Yorkshire	1 8	1 3½
A₂	Torquay ..	S.W. Counties	1 7	1 2½
B₁	Tunbridge Wells	S. Counties	1 5½	1 1½
A	Tunstall ..	Mid. Counties	1 8	1 3½
A	Tyne District	N.E. Coast	1 8	1 3½
A	WAKEFIELD	Yorkshire	1 8	1 3½
A₁	Walsall ..	Mid. Counties	1 7½	1 2½
A	Warrington	N.W. Counties	1 8	1 3½
A₂	Warwick ..	Mid. Counties	1 6½	1 2
B	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 8	1 3½
B	Weston-s-Mare	S.W. Counties	1 6	1 1½
A₂	Whitby ..	Yorkshire	1 7	1 2½
A	Widnes ..	N.W. Counties	1 8	1 3½
A	Wigan ..	N.W. Counties	1 8	1 3½
B₂	Winchester	S. Counties	1 5	1 1
B	Windsor ..	S. Counties	1 6	1 1½
A	Wolverhampton	Mid. Counties	1 8	1 3½
A₂	Worcester	Mid. Counties	1 6½	1 2
A₂	Worksop ..	Yorkshire	1 6½	1 2
A₁	Wrexham ..	N.W. Counties	1 7½	1 2½
B	Wycombe	S. Counties	1 6	1 1½
B₁	YARMOUTH	E. Counties	1 5½	1 1½
B₂	Yeovil ..	S.W. Counties	1 5	1 1
A	York ..	Yorkshire	1 8	1 3½

• Plasterers, 1s. 9d.
† Carpenters and Painters, 1s. 8½d.
‡ Plumbers, 1s. 9d.
§ Painters, 1s. 6d.
‖ Carpenters and Plasterers, 1s. 8½d.
¶ Painters, 1s. 7d.

The above rates of wages are exclusive of increases in certain districts approved by The National Joint Council last week.

PRICES CURRENT

EXCAVATOR AND CONCRETOR

EXCAVATOR, 1*s.* 4½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour*; NAVVY, 1*s.* 4½*d. per hour*; TIMBERMAN, 1*s.* 6*d. per hour*; SCAFFOLDER, 1*s.* 5½*d. per hour*; WATCHMAN, 7*s.* 6*d. per shift.*

Broken brick or stone, 2 in., per yd.	£0	11	6
Thames ballast, per yd.	0	13	0
Pit gravel, per yd.	0	18	0
Pit sand, per yd.	0	14	6
Washed sand	0	15	6

Screened ballast or gravel, add 10 per cent. per yd.
Clinker, breeze, etc., prices according to locality.

Portland cement, per ton	£2	19	0
Lias lime, per ton	2	10	0

Sacks charged extra at 1s. 9d. each and credited when returned at 1s. 6d.
Transport hire per day:

Cart and horse	£1	3	0	*Trailer*	£0	15	0
3-ton motor lorry	3	15	0	*Steam roller*	4	5	0
Steam lorry, 5-ton	4	0	0	*Water cart*	1	5	0

EXCAVATING and throwing out in ordinary earth not exceeding 6 ft. deep, basis price, per yd. cube . 0 3 0
Exceeding 6 ft., but under 12 ft., add 30 per cent.
In stiff clay, add 30 per cent.
In underpinning, add 100 per cent.
In rock, including blasting, add 225 per cent.
If basketed out, add 80 per cent. to 150 per cent.
Headings, including timbering, add 400 per cent.

RETURN, fill, and ram, ordinary earth, per yd.	£0	2	4
SPREAD and level, including wheeling, per yd.	0	2	4
PLANKING, per ft. sup.	0	0	5
DO. over 10 ft. deep, add for each 5 ft. depth 30 per cent.			
HARDCORE, 2 in. ring, filled and rammed, 4 in. thick, per yd. sup.	£0	2	1
DO. 6 in. thick, per yd. sup.	0	2	10
PUDDLING, per yd. cube	1	10	0
CEMENT CONCRETE, 4-2-1, per yd. cube	2	3	0
DO. 6-2-1, per yd. cube	1	18	0
DO. in upper floors, add 15 per cent.			
DO. in reinforced-concrete work, add 20 per cent.			
DO. in underpinning, add 60 per cent.			
LIAS LIME CONCRETE, per yd. cube	£1	16	0
BREEZE CONCRETE, per yd. cube	1	7	0
DO. in lintels, etc., per ft. cube	0	1	6

DRAINER

LABOURER, 1*s.* 4½*d. per hour*; TIMBERMAN, 1*s.* 6*d. per hour*; BRICKLAYER, 1*s.* 9½*d. per hour*; PLUMBER, 1*s.* 9½*d. per hour*; WATCHMAN, 7*s.* 6*d. per shift.*

Stoneware pipes, tested quality, 4 in., per yd.	£0	1	3
DO. 6 *in., per yd.*	0	2	8
DO. 9 *in., per yd.*	0	3	6
Cast-iron pipes, coated, 9 ft. lengths, 4 in., per yd.	0	6	9
DO. 6 *in., per yd.*	0	9	2
Portland cement and sand, see "Excavator" above.			
Lead for caulking, per cwt.	£2	5	6
Gaskin, per lb.	0	0	5½
STONEWARE DRAINS, jointed in cement, tested pipes, 4 in., per ft.	0	4	3
DO. 6 in., per ft.	0	5	0
DO. 9 in., per ft.	0	7	9
CAST-IRON DRAINS, jointed in lead, 4 in., per ft.	0	9	0
DO. 6 in., per ft.	0	11	0

Note.—These prices include digging and filling for normal depths, and are average prices.
Fittings in Stoneware and Iron according to type. *See* Trade Lists.

BRICKLAYER

BRICKLAYER, 1*s.* 9½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour*; SCAFFOLDER 1*s.* 5½*d. per hour.*

London stocks, per M.	£4	15	0
Flettons, per M.	2	18	0
Staffordshire blue, per M.	9	10	0
Firebricks, 2½ in., per M.	11	3	0
Glazed salt, white, and ivory stretchers, per M.	24	10	0
DO. *headers, per M.*	24	0	0
Colours, extra, per M.	£5	10	0
Seconds, less, per M.	1	0	0
Cement and sand, see "Excavator" above.			
Lime, grey stone, per ton	£2	17	0
Mixed lime mortar, per yd.	1	6	0
Damp course, in rolls of 4½ in., per roll	0	2	6
DO. 9 *in. per roll*	0	4	9
DO. 14 *in. per roll*	0	7	6
DO. 18 *in. per roll*	0	9	6
BRICKWORK in stone lime mortar, Flettons or equal, per rod	33	0	0
DO. in cement do., per rod	36	0	0
DO. in stocks, add 25 per cent. per rod.			
DO. in blues, add 100 per cent. per rod.			
DO. circular on plan, add 12½ per cent. per rod.			
FACINGS, FAIR, per ft. sup. extra	£0	0	2
DO. Red Rubbers, gauged and set in putty, per ft. extra	0	4	6
DO. salt, white or ivory glazed, per ft. sup. extra	0	5	6
TUCK POINTING, per ft. sup. extra	0	0	10
WEATHER POINTING, per ft. sup. extra	0	0	3
GRANOLITHIC PAVING, 1 in., per yd. sup.	0	5	0
DO. 1½ in., per yd. sup.	0	6	0
DO. 2 in., per yd. sup.	0	7	0
BITUMINOUS DAMP COURSE, ex rolls, per ft. sup.	0	0	7
ASPHALT (MASTIC) DAMP COURSE, ½in., per yd. sup.	0	8	0
DO. vertical, per yd. sup.	0	11	0
SLATE DAMP COURSE, per ft. sup.	0	0	10
ASPHALT ROOFING (MASTIC) in two thicknesses, ¾ in., per yd.	0	8	6
DO. SKIRTING, 6 in.	0	0	11
BREEZE PARTITION BLOCKS, set in Cement, 1½ in. per yd. sup.	0	5	3
DO. DO. 3 in..	0	6	6

THE wages are the Union rates current in London at the time of publication. The prices are for good quality material, and are intended to cover delivery at works, wharf, station, or yard as customary, but will vary according to quality and quantity. The measured prices are based upon the foregoing, and include usual builders' profits. 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.

MASON

MASON, 1*s.* 9½*d. per hour*; DO. *fixer*, 1*s.* 10½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour*; SCAFFOLDER, 1*s.* 5½*d. per hour.*

Portland Stone:			
Whitbed, per ft. cube	£0	4	6
Basebed, per ft. cube	0	4	7
Bath stone, per ft. cube	0	3	0
Usual trade extras for large blocks.			
York paving, av. 2½ in., per yd. sup.	0	6	6
York templates sawn, per ft. cube	0	6	9
Slate shelves, rubbed, 1 in., per ft. sup.	0	2	6
Cement and sand, see "Excavator," etc., above.			
HOISTING and setting stone, per ft. cube	£0	2	2
DO. for every 10 ft. above 30 ft., add 15 per cent.			
PLAIN face Portland basis, per ft. sup.	£0	2	8
DO. circular, per ft. sup.	0	4	0
SUNK FACE, per ft. sup.	0	3	9
DO. circular, per ft. sup.	0	4	10
JOINTS, arch, per ft. sup.	0	2	6
DO. sunk, per ft. sup.	0	2	7
DO. DO. circular, per ft. sup.	0	4	6
CIRCULAR-CIRCULAR work, per ft. sup.	1	2	0
PLAIN MOULDING, straight, per inch of girth, per ft. run	0	1	1
DO. circular, do. per ft. run	0	1	4
HALF SAWING, per ft. sup.	£0	1	0

Add to the foregoing prices if in York stone 35 per cent.
DO. Mansfield, 12½ per cent.
Deduct for Bath, 33⅓ per cent.
DO. for Chilmark, 5 per cent.

SETTING 1 in. slate shelving in cement, per ft. sup.	£0	0	6
RUBBED round nosing to do., per ft. lin.	0	0	6
YORK STEPS, rubbed T. & R., ft. cub. fixed	1	9	0
YORK SILLS, W. & T., ft. cub. fixed	1	13	0

SLATER AND TILER

SLATER, 1*s.* 9½*d. per hour*; TILER, 1*s.* 9½*d. per hour*; SCAFFOLDER, 1*s.* 5½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour.*

N.B.—Tiling is often executed as piecework.

Slates, 1st quality, per M:			
Portmadoc Ladies	£14	0	0
Countess	27	0	0
Duchess	32	0	0
Clips, lead, per lb.	0	0	4
Clips, copper, per lb.	0	2	0
Nails, compo, per cwt.	1	6	0
Nails, copper, per lb.	0	1	10
Cement and sand, see "Excavator," etc., above.			
Hand-made tiles, per M.	£5	18	0
Machine-made tiles, per M.	5	8	0
Westmorland slates, large, per ton	9	0	0
DO. *Peggies, per ton*	7	5	0
SLATING, 3 in. gauge, compo nails, Portmadoc or equal:			
Ladies, per square	£4	0	0
Countess, per square	4	5	0
Duchess, per square	4	10	0
WESTMORLAND, in diminishing courses, per square	6	5	0
CORNISH DO., per square	6	3	0
Add, if vertical, per square approx.	0	13	0
Add, if with copper nails, per square approx.	0	2	6
Double course at eaves, per ft. approx.	0	1	0
TILING, 4 in. gauge, every 4th course nailed, in hand-made tiles, average per square	5	6	0
DO., machine-made DO., per square	4	17	0

Vertical Tiling, including pointing, add 18*s.* 0*d.* per square.

FIXING lead soakers, per dozen	£0	0	10
STRIPPING old slates and stacking for re-use, and clearing away surplus and rubbish, per square	0	10	0
LABOUR only in laying slates, but including nails, per square	1	0	0

See "Sundries for Asbestos Tiling."

CARPENTER AND JOINER

CARPENTER, 1*s.* 9½*d. per hour*; JOINER, 1*s.* 9½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour.*

Timber, average prices at Docks, London Standard, Scandinavian, etc. (equal to 2nds):			
7×3, per std.	£20	0	0
11×4, per std.	30	0	0
Memel or Equal. Slightly less than foregoing.			
Flooring, P.E., 1 in., per sq.	£1	5	0
DO. *T. and G., 1 in., per sq.*	1	5	0
Planed Boards, 1 in. × 11 in., per std.	30	0	0
Wainscot oak, per ft. sup. of 1 in.	0	2	0
Mahogany, per ft. sup. of 1 in.	0	2	0
DO. *Cuba, per ft. sup. of 1 in.*	0	3	0
Teak, per ft. sup. of 1 in.	0	3	0
DO., *ft. cube*	0	15	0
FIR fixed in wall plates, lintels, sleepers, etc., per ft. cube	0	5	9
DO. framed in floors, roofs, etc., per ft. cube	0	6	3
DO., framed in trusses, etc., including ironwork, per ft. cube	0	7	3
PITCH PINE, add 33⅓ per cent.			
FIXING only boarding in floors, roofs, etc., per sq.	0	13	6
SARKING FELT laid, 1-ply, per yd.	0	1	6
DO., 3-ply, per yd.	0	1	9
CENTERING for concrete, etc., including horsing and striking, per sq.	3	10	0
SLATE BATTENING, per sq.	0	18	6

PRICES CURRENT; *continued.*

CARPENTER AND JOINER: *continued.*

DEAL GUTTER BOARD, 1 in., on firring, per sq.	£3	5	0
MOULDED CASEMENTS, 1¾ in., in 4 sqs., glazing beads and hung, per ft. sup.	0	3	0
DO., DO. 2 in., per ft. sup.	0	3	3
DEAL cased frames, oak sills, 2 in. d.h. sashes, brass-faced pulleys, etc., per ft. sup.	0	4	0
DOORS, 4 pan. sq. b.s., 2 in., per ft. sup.	0	3	6
DO., DO., DO. 1½ in., per ft. sup.	0	3	0
DO., DO. moulded b.s., 2 in., per ft. sup.	0	3	9
DO., DO., DO. 1½ in., per ft. sup.	0	3	3
If in oak multiply 3 times.			
If in mahogany multiply 3 times.			
If in teak multiply 3 times.			
WOOD BLOCK FLOORING, standard blocks, laid in mastic herringbone:			
Deal, 1 in., per yd. sup., average	0	10	0
DO. 1¼ in., per yd. sup., average	0	12	0
DO., DO. 1¼ in. maple blocks	0	15	0
STAIRCASE WORK, DEAL:			
1 in. riser, 1¼ in. tread, fixed, per ft. sup.	0	3	6
2 in. deal strings, fixed, per ft. sup.	0	3	9

PLUMBER

PLUMBER, 1*s.* 9½*d. per hour*; MATE OR LABOURER, 1*s.* 4½*d. per hour.*

Lead, milled sheet, per cwt.	£2	4	6
DO. *drawn pipes, per cwt.*	2	6	0
DO. *soil pipe, per cwt.*	2	8	0
DO. *scrap, per cwt.*	1	9	6
Copper, sheet, per lb.	0	1	0
Solder, plumber's, per lb.	0	1	2
DO. *fine, per lb.*	0	1	5
Cast-iron pipes, etc.:			
L.C.C. soil, 3 in., per yd.	0	4	1
DO. *4 in. per yd.*	0	5	0
R.W.P., 2½ in., per yd.	0	2	0
DO. *3 in., per yd.*	0	2	5
DO. *4 in., per yd.*	0	3	3
Gutter, 4 in. H.R., per yd.	0	1	5
DO. *4 in. O.G., per yd.*	0	1	9
MILLED LEAD and labour in gutters, flashings, etc.	3	12	6
LEAD PIPE, fixed, including running joints, bends, and tacks, ½ in., per ft.	0	2	1
DO. ¾ in., per ft.	0	2	5
DO. 1 in., per ft.	0	3	3
DO. 1¼ in., per ft.	0	4	6
LEAD WASTE or soil, fixed as above, complete, 2½ in., per ft.	0	6	0
DO. 3 in., per ft.	0	7	0
DO. 4 in., per ft.	0	9	9
CAST-IRON R.W. PIPE, at 24 lb. per length, jointed in red lead, 2½ in., per ft.	0	2	5
DO. 3 in., per ft.	0	2	10
DO. 4 in., per ft.	0	3	3
CAST-IRON H.R. GUTTER, fixed, with all clips, etc., 4 in., per ft.	0	2	7
DO. O.G., 4 in., per ft.	0	2	10
CAST-IRON SOIL PIPE, fixed with caulked joints and all ears, etc., 4 in., per ft.	0	7	0
DO. 3 in., per ft.	0	6	0
Fixing only:			
W.C. PANS and all joints, P. or S., and including joints to water waste preventers, each	2	5	0
BATHS only, with all joints	1	18	0
LAVATORY BASINS only, with all joints, on brackets, each	1	10	0

PLASTERER

PLASTERER, 1*s.* 9½*d. per hour (plus allowances in London only)*; LABOURER, 1*s.* 4½*d. per hour.*

Chalk lime, per ton	£2	17	0
Hair, per cwt.	0	18	0
Sand and cement see "Excavator," etc., above.			
Lime putty, per cwt.	£0	2	9
Hair mortar, per yd.	1	7	0
Fine stuff, per yd.	1	14	0
Sawn laths, per bdl.	0	2	9
Keene's cement, per ton	5	15	0
Sirapite, per ton	3	10	0
DO. *fine, per ton*	3	18	0
Plaster, per ton	3	0	0
DO. *per ton*	3	12	6
DO. *fine per ton*	5	12	0
Thistle plaster, per ton	£3	9	0
Lath nails, per lb.	0	0	4
LATHING with sawn laths, per yd.	0	1	7
METAL LATHING, per yd.	0	2	3
FLOATING in Cement and Sand, 1 to 3, for tiling or woodblock, ¾ in., per yd.	0	2	4
DO. vertical, per yd.	0	2	7
RENDER, on brickwork, 1 to 3, per yd.	0	2	7
RENDER in Portland and set in fine stuff, per yd.	0	3	3
RENDER, float, and set, trowelled, per yd.	0	2	9
RENDER and set in Sirapite, per yd.	0	2	5
DO. in Thistle plaster, per yd.	0	2	5
EXTRA, if on but not including lathing, any of foregoing, per yd.	0	0	5
EXTRA, if on ceilings, per yd.	0	0	5
ANGLES, rounded Keene's on Portland, per ft. lin.	0	0	6
PLAIN CORNICES, in plaster, per inch girth, including dubbing out, etc., per ft. lin.	0	0	5
WHITE glazed tiling set in Portland and jointed in Parian, per yd., from	1	11	6
FIBROUS PLASTER SLABS, per yd.	0	1	10

GLAZIER

GLAZIER, 1*s.* 8½*d. per hour.*

Glass: 4ths in crates:			
Clear, 21 oz.	£0	0	5
DO. 26 oz.	0	0	5½
Cathedral white, per ft.	0	0	7½
Polished plate, British ¼ in., up to 2 ft. sup.	0	1	8
DO. *4 ft. sup.*	0	3	2
DO. *6 ft. sup.*	0	3	4
DO. *20 ft. sup.*	0	3	11
DO. *100 ft. sup.*	0	4	8
Rough plate, $\frac{7}{16}$ in.	0	0	6⅝
DO. *¼ in., per ft.*	0	0	7
Linseed oil putty, per cwt.	0	17	6
GLAZING in putty, clear sheet, 21 oz.	£0	0	11
DO. 26 oz.	0	1	0
GLAZING in beads, 21 oz., per ft.	0	1	1
DO. 26 oz., per ft.	0	1	4

Small sizes slightly less (under 3 ft. sup.).
Patent glazing in rough plate, normal span 1*s.* 6*d.* to 2*s.* per ft.

LEAD LIGHTS, plain, med. sqs. 21 oz., usual domestic sizes, fixed, per ft. sup. and up	£0	3	6

Glazing only, polished plate, 6½*d.* to 8*d.* per ft. according to size.

DECORATOR

PAINTER, 1*s.* 8½*d. per hour*; LABOURER, 1*s.* 4½*d. per hour*; FRENCH POLISHER, 1*s.* 9*d. per hour*; PAPERHANGER, 1*s.* 8½*d. per hour.*

Genuine white lead, per cwt.	£3	11	0
Linseed oil, raw, per gall.	0	3	7
DO., *boiled, per gall.*	0	3	10
Turpentine, per gall.	0	6	2
Liquid driers, per gall.	0	9	6
Knotting, per gall.	1	4	0
Distemper, washable, in ordinary colours, per cwt., and up	2	0	0
Double size, per firkin	0	3	6
Pumice stone, per lb.	0	0	4
Single gold leaf (transferable), per book	0	1	11
Varnish, copal, per gall. and up	0	18	0
DO., *flat, per gall.*	1	2	0
DO., *paper, per gall.*	1	0	0
French polish, per gall.	0	19	0
Ready mixed paints, per gall. and up	0	10	6
LIME WHITING, per yd. sup.	0	0	3
WASH, stop, and whiten, per yd. sup.	0	0	6
DO., and 2 coats distemper with proprietary distemper, per yd. sup.	0	0	9
KNOT, stop, and prime, per yd. sup.	0	0	7
PLAIN PAINTING, including mouldings, and on plaster or joinery, 1st coat, per yd. sup.	0	0	10
DO., subsequent coats, per yd. sup.	0	0	9
DO., enamel coat, per yd. sup.	0	1	2½
BRUSH-GRAIN, and 2 coats varnish, per yd. sup.	0	3	8
FIGURED DO., DO., per yd. sup.	£0	5	6
FRENCH POLISHING, per ft. sup.	0	1	2
STRIPPING old paper and preparing, per piece	0	1	7
HANGING PAPER, ordinary, per piece	0	1	10
DO., fine, per piece, and upwards	0	2	4
VARNISHING PAPER, 1 coat, per piece	0	9	0
CANVAS, strained and fixed, per yd. sup.	0	3	0
VARNISHING, hard oak, 1st coat, per yd. sup.	0	1	2
DO., each subsequent coat, per yd. sup.	0	0	11

SMITH

SMITH, *weekly rate equals* 1*s.* 9½*d. per hour*; MATE, *do.* 1*s.* 4*d. per hour*; ERECTOR, 1*s.* 9½*d. per hour*; FITTER, 1*s.* 9½*d. per hour*; LABOURER, 1*s.* 4*d. per hour.*

Mild steel in British standard sections, per ton	£12	10	0
Sheet steel:			
Flat sheets, black, per ton	19	0	0
Do., galvd., per ton	23	0	0
Corrugated sheets, galvd., per ton	23	0	0
Driving screws, galvd., per grs.	0	1	10
Washers, galvd., per grs.	0	1	1
Bolts and nuts, per cwt. and up	1	18	0
MILD STEEL in trusses, etc., erected, per ton	25	10	0
DO. in small sections as reinforcement, per ton	16	10	0
DO. in compounds, per ton	17	0	0
DO. in bar or rod reinforcement, per ton	20	0	0
WROT IRON in chimney bars, etc., including building in, per cwt.	2	0	0
DO. in light railings and balusters, per cwt.	2	5	0
FIXING only corrugated sheeting, including washers and driving screws, per yd.	0	2	0

SUNDRIES

Fibre or wood pulp boardings, according to quality and quantity. The measured work price is on the same basis . . . per ft. sup.	£0	0	2½
FIBRE BOARDINGS, including cutting and waste, fixed on, but not including studs or grounds, per ft. sup. . . . from 3d. to	0	0	6
Plaster board, per yd. sup. . from	0	1	7
PLASTER BOARD, fixed as last, per yd. sup. . . . . from	0	2	8
Asbestos sheeting, $\frac{5}{32}$ in., grey flat, per yd. sup.	0	2	3
DO. *corrugated, per yd. sup.*	0	3	3
ASBESTOS SHEETING, fixed as last, flat, per yd. sup.	0	4	0
DO. corrugated, per yd. sup.	0	5	0
ASBESTOS slating or tiling on, but not including battens, or boards, plain "diamond" per square, grey	2	15	0
DO., red	3	0	0
Asbestos cement slates or tiles, $\frac{5}{32}$ in. punched per M., grey	16	0	0
DO. *red*	18	0	0
ASBESTOS COMPOSITION FLOORING: Laid in two coats, average ¾ in. thick, in plain colour, per yd. sup.	0	7	0
DO. ½ in. thick, suitable for domestic work, unpolished, per yd.	0	6	6
Metal casements for wood frames, domestic sizes, per ft. sup.	0	1	6
DO. *in metal frames, per ft. sup.*	0	1	9
HANGING only metal casement in, but not including wood frames, each	0	2	10
BUILDING in metal casement frames, per ft. sup.	0	0	7
Waterproofing compounds for cement. Add about 75 per cent. to 100 per cent. to the cost of cement used.			
Plywood:			
3 m/m alder, per ft. sup.	0	0	2
4½ m/m amer. white, per ft. sup.	0	0	3½
⅜ m/m figured ash, per ft. sup.	0	0	5
4½ m/m 3rd quality, composite birch, per ft. sup.	0	0	1½