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EAST OF THE "BRITANNIA"

H.R.H. THE DUKE OF YORK, expressing the sympathy for the common people, which is so marked a characteristic of our Royal Family, reminded a well-fed assembly at the R.I.B.A. annual dinner that the duty of architects lies east as well as west of Piccadilly Circus, in places pleasant and unpleasant. "Take two walks in London on successive days," he said. "On the first day walk from Marble Arch, through the parks and noble streets of the West End, where you will pass in review historical and monumental buildings, ranging from the palaces of the rich, through all the nobility of governmental architecture to the glory of St. Paul's itself.

"On the next day go to the 'Britannia,' Camden Town, or to the 'Elephant and Castle,' and walk east from either of these places for the space of three miles, then stop to compare the experiences of the two excursions.

"On one side is all the spacious majesty of a capital city, and on the other the dreariness, the dirtiness, the shoddiness, and the incomparable vastness of poverty-stricken London."

This is a picture provocative enough to make us wish to see for ourselves how great is the disparity, and how much of the ugliness and squalor can be laid at our door, as architects, and by how much we can improve it. We went to the "Britannia" and walked east, three miles and more. We found a district laid out in Regency or Early Victorian days, with wide streets and narrow, with crescents, terraces, and occasional squares, such as Coldington Square, beautiful with grass and shady trees. We found, too, a sense of order and an atmosphere of decency, and felt at last that we must have gone in the wrong direction. We therefore took a bus and journeyed to the Caledonian Road and explored the hinterland east of this grim thoroughfare. Here were the same classical houses, in longer rows, with higher façades. Here was poverty more apparent, and a population overflowing into the streets; but here, too, was some sense of ease and local charm, some trees, some buildings fine enough to remember, and nothing which had not architecturally at least its counterpart in West Kensington. We went on again to the Mile End Road, where the population seethes around its dwellings like ants round their ant-hill, and the sense of oppressive humanity is everywhere. Here factories stand cheek by jowl with mean houses, domesticity is subordinated to commercial interests, and all sense of quiet living is swallowed up in clamorous, blatant communal existence. But here, too, if there could be more open spaces to mitigate the presence of over-habitation, the architectural background would be better than bearable, for most of the London poor are housed in buildings that resemble those of more-favoured localities. In the centres we passed through we saw our fill of poverty and squalor; but we might say with truth that we should prefer to live off a Mile End Road made clean than in any of the formless and wickedly monotonous districts which, lying farther out, house the lower middle-classes, and are not called slums. It is from these dreary streets that all hopefulness, beauty, imagination, and personality has fled. Here one finds no local colour, no landmarks, and no architecture worthy of the name. Camden Town is happier in its architecture than Tooting and Balham. No, the problem is primarily sociological. There are districts to be found where a miserably poor population live among the ruins of a once noble quarter replete with tree-filled squares, and there are industrial towns in the north where gaunt mills rise above a sea of uniformly small houses, devoid of any but the elementary features of domesticity; but, nevertheless, clean and wholesome.

It is poverty that smirches the face of a town and the inability to keep clean and tidy that makes a slum. The remedy lies in a sense of order, as one sees its operation in the slum clearances of the L.C.C., combined here with the governance of a wise landlord. It is a hard thing to say that external control is the only remedy against the formation of slums, and yet it is true to the type of housing where many people live in close juxtaposition, and it holds good equally in the expensive block of flats as in the tenement. Both have their code of rules, though one is only implied. People respond to environment, and live ordered lives in ordered surroundings so long as they have the means of living; but the task of housing the very lowest class of tenant in decency is primarily sociological and at bottom financial, since everything must be paid for.

Architecturally speaking, we might say to the jerry-builder and the pseudo-architect, whose influence has blighted still vaster areas in the suburbs: "Walk three miles east of the 'Britannia' at Camden Town and learn from what you see that man requires variety and contrast in his dwelling, simplicity, quietness, and decency, and think, if these are slums, how infinitely worse your ram-shackle villas will be when they, too, fall from smugness into poverty."

NEWS AND TOPICS

PROPOSALS are now on foot which, if realized, will eventually change Lulworth Cove, on the edge of Hardy's Wessex, into a fashionable seaside resort. However admirably designed such a resort may be—and in this case, with such a magnificent natural setting, at present almost unspoilt, there can be no excuses for anything but the best—one is forced first to ask what reason is there for such a revolutionary change as is proposed? Situated about six miles from Wool Station, about twenty from Bournemouth, and some one hundred and thirty from London, the village up to the present has functioned satisfactorily as a home for fisherfolk and residents, and as a holiday resort for those who prefer a small, unsophisticated place where the sea, the hills, and the rocks supply all the amusement that is required. Also it is visited daily, in the summer and at holiday times, by hundreds who come by car, charabanc, and steamer to enjoy its quiet charms and the beauty of its surroundings. The stone and plastered houses of the straggling village street blend admirably with the landscape; and the cliffs, frontier of the hills behind, guard the infrequent beaches from mass approach.

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It is as though Nature herself in rearing the steep-sided hills and bringing the sea right to their feet, with but few pockets affording margin for beaches, and with small safe anchorage for boats, had made plain that here she should be left inviolate, here be worshipped by reverent pilgrims. No doubt there is space to spread many houses in the folds of the downs, but the slopes of Bindon Hill are too steep for building, its long crest—site of a prehistoric green road leading to Flowers Castle—sacrosanct, and there is no natural margin for urban development. Two years ago a conference was held at Bournemouth, when it was proposed that a Regional Planning Committee should be formed, extending west to Weymouth. Failing impetus from the largest town, the project has languished; but surely Bournemouth, Poole, and Weymouth must now realize that a haven which forms the goal of a favourite excursion for so many thousands of their visitors is in danger, and will take their part and assume some responsibility in securing its preservation before it is too late.

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Many architects of the future will no doubt make use of the British Institute in Paris, to which the Royal Institute of British Architects has just decided to subscribe each year. The British Institute has already secured the powerful support of the majority of the universities in Great Britain and Ireland. Oxford, Cambridge, London, Glasgow, Edinburgh, Manchester, Liverpool, Leeds, Sheffield, Wales, Belfast, and Dublin have all-agreed to give an annual donation to help forward the work of the Institute. Within the last few days the first director, Mr. Stephen Ward, now lecturer in philosophy at the University of Reading, has been appointed. He is a man of considerable sympathy and knowledge of architectural matters, and will certainly give a very warm welcome to all architectural students who may go to Paris in order to study at the Ecole des Beaux Arts, and who may care to make use during their stay of the facilities, educational and social, provided at the Guild of the British Institute at 6 rue de la Sorbonne. Mr. Edward Warren is, of course, the architect for the proposed college of residence, to be erected at the Cité Universitaire, the perspectives of which may be seen at the Royal Academy.

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Architects will do well to study the third report of the Central Council for the Care of Churches that has recently been issued by the Church Assembly. Some useful hints on the care of churches are given; but it is carefully explained that these notes are not final, but simply suggest the general principles which modern experience has evolved. Naturally it is advised that all ivy should be removed everywhere, and that no trees should be allowed too near a church, as the blowing of rain from branches is very bad for the walls. It is also recommended that whereas the common nineteenth-century practice was to renew in the most drastic manner any worn or broken stonework, nowadays every possible method of arresting decay should be explored. In many cases piecemeal superficial repair can be effected by cutting out small portions near the surface and filling with tiles bedded in cement and covered with mortar. "In some cases an artificial stone preparation can be used with great advantage, provided that the work be done under the supervision of an architect, and not left in the hands of the proprietors of the preparation."

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The dangerous effect of iron on stone is pointed out. Accordingly much iron cramping done in the eighteenth and nineteenth centuries requires renewal in gunmetal. For the same reason most wire guards should be removed from stained glass, unless made of copper, save only where the glass is ancient or peculiarly exposed to stone-throwing. Clergy and churchwardens are advised always to call in an architect when a question arises as to the rehanging of bells in ill-designed frames. I am glad to hear that a warning has been circulated to those responsible for our English churches not to part with any ancient woodwork, whether Gothic or Renaissance. In one parish a priceless fourteenth-century screen was removed as late as 1917 and burnt in the churchyard. In Suffolk recently ancient screen panels, painted with English "primitives," were crudely touched up.

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The inauguration of the immense block of flats which has arisen on the site of Grosvenor House and its garden will have drawn once again special attention to Park Lane—an attention which was recently concentrated on it when the news came that Dorchester House was doomed to destruction. Perhaps no other residential street in London has ever quite attained the fashionable popularity of Park Lane. It has long been synonymous with affluence and worldly success; and at the time of the boom in South Africa there was a veritable scramble among newly-equipped millionaires for residences in this once most select of thoroughfares. I know one case in which a lady, a very unwilling seller, was yet tempted by the vastness of the offer made, and was induced to give up her beautiful, though relatively small, house here in exchange for the sum dangled before her dazzled eyes; and I was told at the time that this great amount was paid by a super-wealthy South African magnate because a fellow-speculator (already

possessed of a house in the Lane) had laid him a wager that he would be unable to obtain one. And now these once much-desired houses are giving place to business premises and flats! It is some years since the houses at the north end, in one of which Mr. George Murray Smith, the publisher, lived, were converted into tenements; Grosvenor House, lower down, carries on the tradition of change, and where Mr. Hudson, of soap fame, lived in his medieval stronghold, an insurance office today wonderingly carries on its protective labours.

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One of these days, when all the old places have gone, someone will probably write the history of Park Lane, and a fascinating book it should make. For this street, which only has one side to it, like London's river, in fact, has been associated in its time with half the peerage, and has been the centre of not a few historic happenings. Its original development was, of course, due to Sir Richard Grosvenor, who, in the middle of the eighteenth century, began to cover the large area of Mayfair with houses. One of the first to take advantage of what was then an airy but quite remote situation, was the great Earl of Chesterfield, who commissioned Isaac Ware to design Chesterfield House. In later days this splendid private palace became the home of the Duke of Abercorn; then Mr. Magniac bought it and, cutting off its ample gardens abutting on Curzon Street, erected the houses in Chesterfield Gardens. Later, Lord Burton lived there, and now, as all the world is aware, it is the town residence of the Princess Mary and Lord Lascelles. Dorchester House itself stands on the site of an earlier mansion of the same name, which belonged to the Damers, Earl of Dorchester. The mansion was subsequently acquired by the third Marquess of Hertford, the prototype of Thackeray's Marquess of Steyne, who died here in 1842, when the place was purchased by Mr. R. S. Holford, who pulled it down and commissioned Lewis Vulliamy to design the present splendid structure which seems inevitably doomed to disappear before long, and to add one more to the already long list of destroyed architectural glories.

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But with these palaces we are only, as it were, in the suburbs of Park Lane's interesting annals—Park Lane, which originally boasted the less aristocratic name of Tyburn Lane, with Tyburn Tree at its northern end. In that part once stood Camelford House, once the London abode of Prince Leopold and the Princess Charlotte, who were not the only members of the Royal Family who have graced the Lane in the past, for the Duke of Gloucester once lived in Grosvenor House; the Prince and Princess Arthur of Connaught resided for a time at Brook House, once Lord Tweedmouth's, and later Sir Ernest Cassell's; and Mrs. Fitzherbert, the wife of George IV lived for many years at the "Bow Window House" in Tilney Street, and had been married to the Prince in an earlier residence just off Park Lane, in Park Street. Another great house, that of the Marquess of Londonderry was formerly known as Holderness House; and next door is the elaborate little dwelling which Whittaker Wright caused to be built not long before the crash came and he ended his life to avoid imprisonment. Dudley House, where the princely Earl of Dudley, with his raven locks, used to entertain so lavishly and which he filled with priceless treasures, is yet another landmark here; and one can still see the rounded front of the dwelling (its entrance is in Seamore Place) where the gorgeous Lady Blessington lived, and that other glass-encased house close by, where Mr. Alfred de Rothschild kept his Reynolds and his Gainsboroughs, and listened, with his hosts of friends, to the strains of his private band.

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No artist goes to Venice without painting, drawing or etching the buildings which crowd upon the canals, and no artist has done this with more credit to himself and the buildings than James McBey. He shows fifteen new plates at Lefèvre's Gallery, largely architectural in subject, as are also the watercolour drawings there. These drawings are attractive, but not quite so satisfying as the prints. The latter are more business-like, the drawings done more in an hour of ease. They display nice and precise observation of buildings, but the so-called glamour of Venice has called forth a mood in which the artist has succumbed to gorgeous sunset. I am not fond of gorgeous sunsets, especially in watercolour. I like the sober cloud effects with their consonant water effects of the artist's sounder, more traditional, manner better. Fortunately, the architectural subjects afford less temptation for the display of vivid sunsets, which, while they have plenty of colour, have no emotion. There is emotion in the etchings as well as delicious technique. Even the niggly "Antwerp" has it, and the slight "Barcarolle" and "Santa Maria della Fava" do not escape it, despite their efforts in the direction of tone; or "The Bridge by Night," for all its attempted impressionism. I am not sure that the Thames scene, "The Pool," of 1914 is not as good as any of these new Venetian plates, and certainly "France at her Furnaces" is altogether admirable. The new series, however, is very fine, and certain to increase McBey's reputation in etching and drypoint.

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The reproduction of sculpture for illustration has always been a difficulty. Forty or fifty years ago it was done by engraving, mostly wood-engraving, and generally rather bad at that. It gave some idea of form, but not plastic form, and certainly not glyptic form. The half-tone process was a great improvement and provided a better idea of the original work. But a half-century since the sculpture that was reproduced was bad, and even classical masterpieces seemed bad under the hand of the unskilled engraver. At Tooth's Modern Salon, 155 New Bond Street, I was intrigued with a new reproductive method of the old sculpture, neo-classical and classical, at the hands of one of the newest artists, Nina Hamnet. With a broad pen-line she indicates form and, what is more, she brings out character. Her line is expressive, so that the character of these drawings is their main claim to consideration. It is not the character of the sculpture, however, but the character she imparts to it. Seeing that most of her subjects are the neo-classical statues of London, there is an element of entertainment which cannot be denied nor, indeed, reprobated. For a whole year we have been reminded of these statues in our midst: by three important books and by articles and correspondence. I wonder, and ask myself what is the portent? In any case, Nina Hamnet's clever drawings are full of amusement, naïve, and yet subtle.

ASTRAGAL

CONCERT ROOM ACOUSTICS

[BY HOPE BAGENAL]

COMPLAINTS concerning music rooms are made both by players and audience, and fall into two separate groups.

The complaints by players are as follows: 1: Difficulty in hearing themselves; 2: difficulty in accompanying others; 3: tone "hard to produce"; 4: tone "dull" and "dead"; 5: no balance as regards treble and bass; for instance, bass on a piano louder than treble and requiring compensation by the player; 6: double-basses and 'celli too weak; 7: echoes come back to platform; 8: difficulty in rehearsing in the hall when empty, owing to the long reverberation.

The complaints by audience are as follows: 1: Not loud enough; 2: not distinct enough; sequence of notes blurred by reverberation; 3: echoes produced by a particular position of a player; 4: no balance of tone; for instance, orchestra heard properly, but not the choir, or vice versa; 5: brass far too loud.

Some of these complaints are common to both players and audience, but generally speaking players do not complain of too long a reverberation and do complain about difficulties in producing tone, while the audience tend to complain about reverberation and, on the other hand, do not often complain about lack of loudness. A reason of this distinction is that the players are concerned with the generating of sound and the audience with the absorption of sound. This suggests that orchestra recess and platform have one function and the auditorium another, and this, in fact, is the case. The growth and decay of a single sound in a room has been shown graphically by Eckhardt, *Frank. Inst. Journ.*, 195, 799, 1923. The sound-energy mounts up according to a certain curve until equilibrium is reached between emission and source and absorption of hall, and is thereafter maintained. When the source ceases the sound dies according to the same curve inverted. From a design point of view, therefore, the platform and recess have to provide the growth and maintenance of equilibrium, and the auditorium has to provide the absorption.

Where these requirements are ignored and a platform is heavily draped and the auditorium left highly reverberant —as not infrequently happens—then the extreme complaints of deadness occur. I recently experienced this myself reading in a large hall. I experienced the sensations that cause musicians to say: "I felt I was singing into a blanket, I will never sing there any more." Professor Watson made actual experiments in which, in a room of approximately 6,500 cub. ft., sound-absorbing material was introduced to give the right reverberation, but placed round the musicians first and then in the neighbourhood of the audience. Complaints were made in the first case and not in the second. The point of the experiment was that the reverberation was correct in both cases, but the acoustic design wrong in the first case. Therefore the reflectors and resonators should be in the neighbourhood of the platform and the chief absorbents in the auditorium.

The complaint that players cannot hear themselves is a serious one. When an orchestra is in full blast, unless each player can get a little of his own tone back from a reflector within 20 or 30 ft. he will not hear his own instrument, and will rely upon the baton of the conductor. This is especially the case with string and reed instruments, they rely upon hearing some little scrape or squeak that gives them the cue. That is, they rely upon what musicians call "tops." Tops are reflected by the very hard plasters or varnished wood, and it is most necessary to provide a certain area of these surfaces.

This applies also to accompanying upon the piano behind the back of a singer. Mr. Adrian Boult, in regard to the Gewandhaus at Leipzig, says: "I have played accompaniments there when it was about half full, and was much struck by the fact that although the singers' backs were turned to me it seemed perfectly easy to judge whether the accompaniment was at the right strength or not. One usually finds one is so terribly in the dark on this point in most halls."

This point should be met in design by seeing that the splayed surfaces, as the ceiling over platform, returns sound upon players as well as projecting it into the auditorium. Extreme cases occur in places like the Crystal Palace during the Handel Festival. Here the loudest soloist is almost inaudible to the audience and must have great difficulty in hearing himself or herself adequately, since he is surrounded on three sides by an orchestra and choir of some hundreds of persons, banked up in tiers. He should undoubtedly in such cases sing from a little rostrum, having a screen reflector. In the Younger Hall, St. Andrews, Mr. Waterhouse designed such a reflector, forming the back of the console of the organ.

Bad cases of singers and players not hearing themselves occur in halls where a platform is designed for theatricals. Here the overhead spaces may be occupied by cloths and sets and the side spaces also; varnished wooden screens should then be used. Buildings like town halls and school halls, liable to be used both for good concerts and theatricals, should be specially designed with a flap ceiling and with a large adjustable apron stage.

In many opera houses the balance of tone as between orchestra in the proscenium and chorus at back of stage is entirely lost on the ground floor and lower galleries. This is specially the case at the Adriana in Rome, where the discrepancy is emphasized by concentrations from a flat-domed ceiling.

From a design point of view the chorus must not be handicapped in comparison to the orchestra, but if anything it should be the other way round. The first to recognize this, as far as I know, is Wagner, who buried his orchestra fairly completely under the floor of the stage (at Beyreuth) and placed his brass at the very bottom. The Wagnerian orchestra pit not only subdues but mingles instruments, and acts as a single source much more than the open Italian orchestra, as at the Scala and Covent Garden.

In the "Ring," at Covent Garden, the brass is far too loud, especially in the "Gotterdammerung." Wagner not only originated Wagner opera, but designed a special instrument for it at Beyreuth, greatly different from an Italian opera house. An Italian orchestra often has a special curve to its balustrade, which probably helps to return a little sound upon the players. This must be

[The above is the substance of a lecture given by Mr. Hope Bagenal at the Architectural Association.]

most necessary at the Scala at Milan, where an orchestra of 100 sits round Toscanini in the open cavea of the auditorium and in terror of his baton.

To get a good balance of tone ought to be one of the first requirements in music room design. The best means of attack is by using the fan-shape plan. This naturally tends to concentrate players and to radiate the audience. In the ordinary concert room or opera house the worst seats are the front side seats. A wide orchestra front causes bad hearing in front seats, since sounds arrive inevitably by paths of greatly varying length. All good seats are at a minimum distance of 30 ft. from the conductor, thus allowing the equal assembling of sounds on the ear from all instruments. The fan-shape plan places the majority of listeners on a broad band at a radius on an average of 50 or 60 ft. from platform. The wall and ceiling splays give short reflectored paths out upon the audience, and upon a plan of this shape a rear gallery will provide the maximum width for seats. A bad square-planned concert room can often be improved by placing the orchestra in an angle position and reseating diagonally. This is really improvising a fan.

The old horseshoe-planned opera house of immense height and crowned with a dome is about as bad as it could be for the expensive seats on the ground floor and first galleries. In Paris and Milan these seats, however, are occupied by rich English and Americans, who don't notice (the English are well trained by their Albert Hall), and all critics and musicians go up to the very top, where the stage floor acts as a reflector. For balance of tone as between basses and sopranos it is equally necessary to design the materials properly. For instance, large areas of wood panelling and porous plaster will reinforce basses and absorb sopranos, thus upsetting balance. Sopranos must be reinforced by hard plaster, and for this purpose Keen's Siripite or painted ordinary plaster should be used. A good method is to panel to a certain height and have overhead splay hard plaster, as at Hastings.

Production of tone is a phrase which largely sums up the criteria of the executant musician. Tone is easy to produce when a sound increases in energy rapidly and is easily maintained in equilibrium. Thus the player has a sense of power and is not easily fatigued. Fatigue is also caused by lack of balance, and by the necessity on the part of the player to compensate for inequalities in the building. At Hastings the architects designed a highly-reflecting and resonant splayed platform recess and proscenium. The panelling is tongued into the platform and staging, and is thus mechanically coupled, the whole forming a resonator. The auditorium has a reflecting ceiling, but is otherwise highly absorbent. Thus, although reverberation is quite short (1·4 seconds with the hall full), tone is easily produced and a small orchestra gives sufficient loudness for the building. In the words of the *Times* critic at the opening concert: "Strings are clear and ringing." A good test in the production of tone in a concert hall or opera house is whether the 'celli and double-basses can be heard. One excellent result of wood panelling mechanically coupled to the orchestra floor is to increase the power of these instruments.

If the ceiling is properly designed as a reflector, sending all sound after one impact straight upon the audience, loudness is increased. For this purpose large marginal coves are valuable as at Hastings, at the Welwyn Theatre, and at the Queen's Hall. No scrap of sound should be wasted; a cove over the rear seats can enormously increase their value acoustically, and at the same time prevent the necessity of absorbing material on the end wall. The sound should be sent to the audience to absorb. The concave cove, however, must have its centre properly designed. The convex cove as at the Queen's Hall is always safer because sound reflected from the convex cove does not pass through a focus at any point. Concave coves bring sound to a focus at a point approximately halfway between centre and circumference diametrically opposite the source. This applies equally to semicircles on plan of whatever size.

Acoustical shapes are shown in figures one and two. In figure one (i) (ii) (iii) (v) (vi) are suitable for concert halls of any size, (iv) is the Hill Memorial type in which a soloist is placed at the focus of a parataloid, (vii) is a theatre type. In figure two (iii) is the Welwyn Theatre type, (iv) is the Hastings type.

But ceilings designed as reflectors must be carefully adjusted—neither too high nor too low. High enough to give the right reverberation for tone, low enough to give reflected paths within the permissible limit. A concave ceiling which is too high will act as a powerful reflector after too long an interval. For instance, at the Albert Hall on the ground floor the excess of the reflected path over the direct path is 200 ft. approximately (figure three), that is to say, sound descends upon the listener after one-fifth of a second; in other words, a beat late. This would not matter so much were it not concentrated by the concave form. This concentration has been mitigated by the velarium, but even with the velarium is too powerful. The annoyance can be avoided by going to the upper galleries. The seats, in fact, should be graded in price according to the acoustics. The echo at the Alhambra heard in the front seats of the second circle is illustrated in figure four. It is due to the concave ceiling.

From the players' point of view long-reflected paths are objectionable because if sound returns violently after so

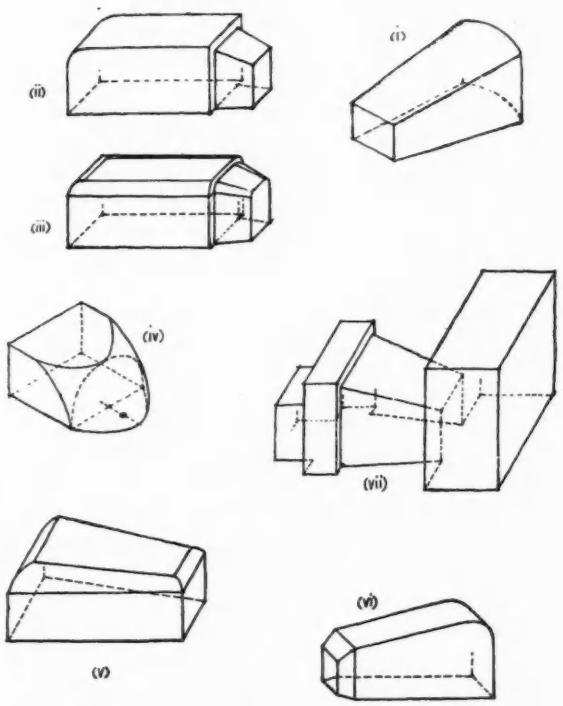


Figure One.

short an interval as a tenth of a second, staccato passages are difficult to play. For this reason, even in concert rooms of moderate size, no sound should return along the long axis of the building. The time taken by musical sounds in sequence is approximately from one-fifth to three seconds, varying with the tempo.

The presence of an audience in a hall has a marked influence on the reverberation causing it to vary in some cases as much as two seconds. This means that at rehearsals tone values and tempo may be very different as compared to the night of the performance when the hall may be full. This difficulty is best met by good upholstered seats with upholstered arms and backs. Such seats providing as much as two units of absorption each come into play when unoccupied and are neutralized when an audience is present. To a less extent a thick carpet provides an

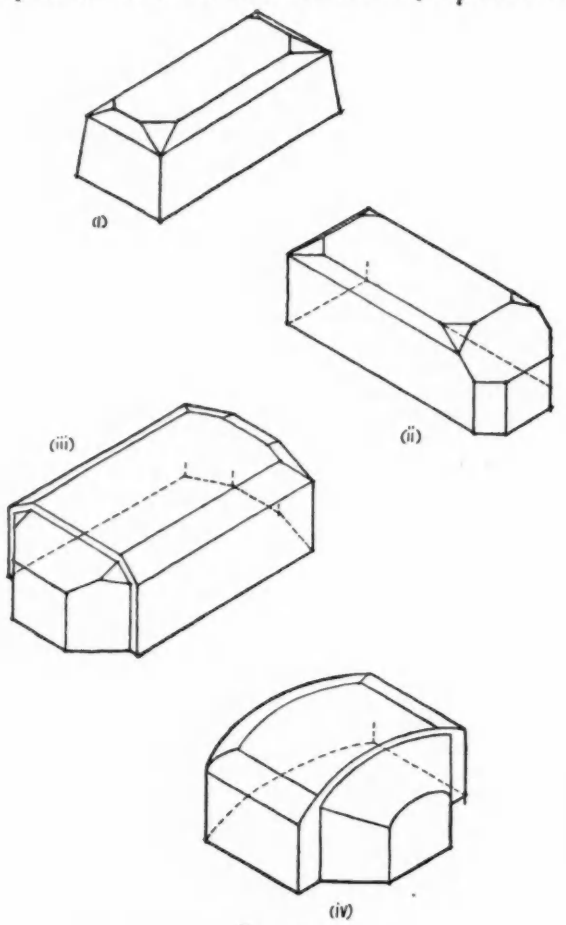


Figure two.

adjustment of this kind, that is to say, it is most efficient when it is least shaded by audience. If proscenium splay, ceiling, and coves are designed to send sound direct upon audience area, carpets and upholstered seats can be thoroughly efficient in a hall empty or half empty. Another method is to provide adjustable absorption in the form of a curtain that can be lowered or drawn across at the conductor's back during the rehearsals, thus cutting off the auditorium and providing absorption. This, I believe, is done at the concert building at Amsterdam with considerable comfort to the players. An adjustable curtain is of great value for another purpose which we must now consider.

It is well known that the tone quality of musical

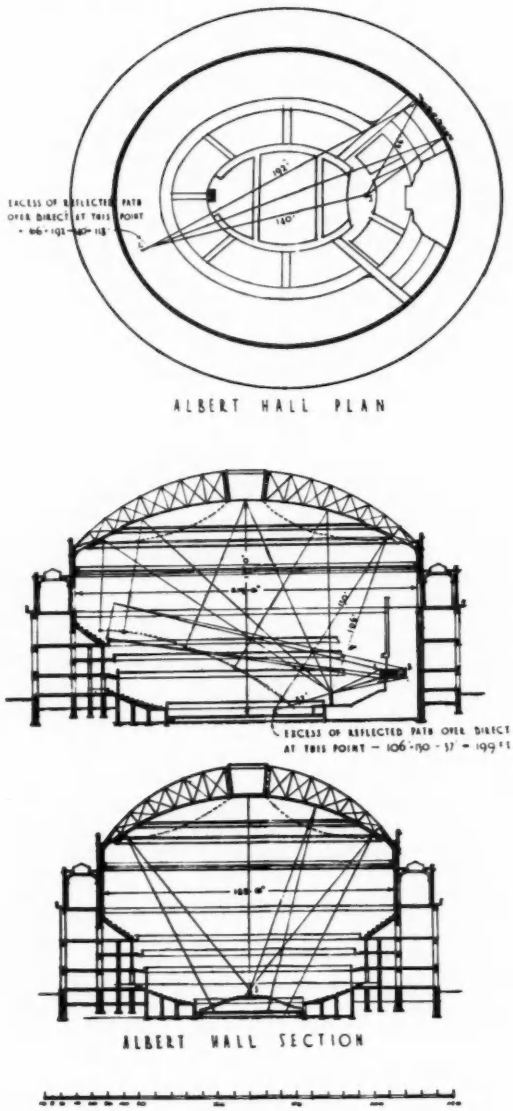


Figure three.

instruments depends on the series of partials or overtones possessed by each instrument. Thus a flute has the simplest sound of any orchestral instrument, that is to say, it has few overtones. But when the lower register is

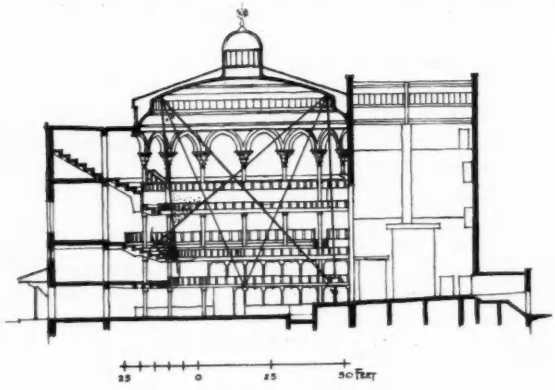


Figure four.

played forte the first overtone (the first octave) becomes prominent, and the fundamental is weak. The violin has tones when played loud, characterized by strong partials as high as the fifth, while the E string gives a strong third. In general the tone of the violin is characterized by the third, fourth, and fifth partials. The clarinet tone—a reed—has the seventh, eighth, ninth, and tenth predominating. The oboe has two powerful overtones close together, the fourth and the fifth. These instruments are characterized by numerous and powerful overtones with those from the second to the sixteenth equally loud. The tone quality given by these partials is the result of the body or resonator of each instrument, which actually modifies tone, absorbing some partials, and not others. But a concert room is also itself a resonator, so that when we take a musical instrument from out-of-door conditions and introduce it into a room we are adding to it a second resonator. This is perfectly recognized by organ builders who have to design an organ differently for every hall or church, and have to take into account the relative amounts of masonry, wood, or glass present.

Now, from the Sabine curves, we know that, quite roughly, curtains hung loose absorb relatively more in the upper register; upholstery and thick carpets, relatively in the middle register; and wood relatively in both low and middle registers. Plaster on lath resembles wood in this respect. The aim of the architect then should not only be to get a right relationship in his hall between the volume, the area of wood, hard plaster, and the softer absorbents, but also to design methods by which some variation could be made in the relative amounts present. This could be arranged by designing a large curtain area to draw out and shade some of the wood panelling. Or else wood shutters or louvres could be designed to open or shut over panels of thick felt. It is well known that the bass voice will be sweetened by a relatively larger amount of absorbing material, and the same applied in a less extent to the piano. For these purposes adjustments could be made by drawing out the curtain or exposing the upholstered areas. On the other hand, instruments pure in tone (that is to say in which the fundamentals predominate), such as the flute, the soprano voice, would benefit by larger areas of reflecting and resonating material. Again, also instruments that are naturally weak in tone, such as 'cellos and harpsichords, benefit by relatively more reflecting and less absorbent material, and for them such a concert room would again have all hard surfaces exposed and curtains hidden. The architectural treatment could be made to reflect the musical instrument element of the hall. An interesting modern design by Mr. J. W. Parr, a student of the A.A., in which reflectors are distinguished from resonators, is shown in figure five.

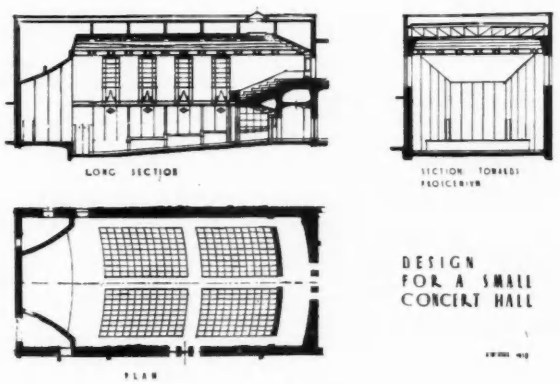


Figure five.

All questions of tone, however, presuppose an adequate reverberation, that is to say, relationship of air volume to seating capacity. For small halls, taking the Æolian Hall as a standard, at least 70 cu. ft. is required per seat. For larger halls of 200,000 cu. ft. and more in total volume, at least 200 cu. ft. per seat is required. Larger halls require more. The Leipzig Gewandhaus, for instance, having a total volume of 407,000 cu. ft., has as much as 270 cu. ft. per seat.

We have in the Queen's Hall in London a hall excellent for tone, which, if analysed, would give us a very valuable standard. Two of our leading musicians, Mr. Gustav Holst and Mr. Vaughan Williams, have given me as their opinion that the Queen's Hall when full gives a suitable reverberation. It would be of great help to architects if a reverberation table of the Queen's Hall could be made.

Reverberation can be reduced only when reflectors and resonators are carefully designed, as at Hastings and Welwyn. But for choral music, in my opinion this does not hold. The true fullness of tone characteristic of a good choir at its best can only be given by a reverberation at least of two or two-and-a-half seconds; a longer reverberation even is permissible. One reason of this is that the choral tradition is inevitably bound up with the church and the church auditorium where the reverberation is on the long side.

Some years ago I wrote to Mr. Whittaker, of Newcastle, suggesting that, from first principles, St. Margaret's, Westminster, ought to be a good auditorium for Byrd's Great Service which Mr. Whittaker was at that time about to conduct, bringing his northern choir to London for the purpose. He replied to me on February 3, 1925, as follows: "St. Margaret's, Westminster, was ideal for the Great Service. The choir had never sung anywhere before where they had felt so much at home. From the very first minute they had no trouble to produce their voices. They felt that their voices were carrying and that every word was distinct." The reason is, of course, that St. Margaret's, Westminster, is a perpendicular hall church without transepts, but giving probably some 300 cu. ft. per person with a full congregation. For such English churches Byrd wrote English music. This music is as fine as any in the world, and intimately related to a building type. It seems as though the particular beauty and quality of choral singing requires a proper relationship with a building. Perhaps in some future age, in a generation happier than ours, an English architect will have the opportunity of designing a Stradivarius—a very violin of concert rooms in which the English Elizabethan choral music will be heard as it should be heard.

Recent Halls Acoustically Designed

Hastings: White Rocks Pavilion. By Messrs. Voysey and Morgan.

The Welwyn Theatre, Welwyn Garden City. By Messrs. De Soissons and Kenyon.

St. Andrews: Younger Hall. By Messrs. P. and M. Waterhouse.

Sports Pavilion, Billinghay, for Messrs. Synthetic Ammonia Co., Ltd. By Mr. L. H. Bucknell.

Design for the Shakespeare Memorial Theatre submitted by Miss Elizabeth Scott (the Winning Design).

Design for the Shakespeare Memorial Theatre submitted by Messrs. Tubbs, Son and Duncan, and S. R. Pierce.

Design for a Small Concert Room with Adjustable Absorbents. By Mr. Hope Bagenal.

Design for a Small Concert Room in the Modern Manner. By Mr. J. W. Parr.

THE CROWN OF SCOTLAND

[BY RAYMOND McGRATH]

My crown is in my heart, not on my head.

SCOTLAND may well utter the words of Henry as she surveys her modern architectural paraphernalia. Certainly her crown is not to be seen and, if that other crown she must wear in her heart "is call'd content," it is a strange pass indeed. If there is one thing we should all desire, it is to see the crown of fine architecture set upon the head of Scotland again, and these remarks, in their minor way, are devoted to that cause. In the last few decades there has been witnessed a consummation of the decay of taste in building which set in effectively with the coming of machinery and improvement of facilities of transport. Both have been mixed blessings, only now emerging in their true perspective. All over the world facility of transport has upset the natural sense of propriety in the selection of building materials, and this, more than anything else, has led to decay of good taste and desecration of a great many of the mature architectural compositions which we have inherited. Indeed, a sad lack of sensibility characterizes only too much of our recent building activities. A few enthusiasts work on undaunted and try to rediscover old simplicities.

During the eighteenth and early nineteenth centuries most towns were planned according to the direction of the owners of the estates on which they stood. This was a good scheme when it succeeded, but it succeeded only when the direction fell to someone imbued with a spirit of humanism. The ducal estate of Bloomsbury in London, and the new town of Edinburgh planned by Craig in 1767 and extended by Playfair in the nineteenth century, are fine examples of what can be achieved in this way. To similar enlightenment we owe some of the finest simple groups of buildings in Scotland—Inveraray, and Bowmore (Islay), for example. The great mass of nineteenth-century building leaves a very bitter taste in our mouths. Estates were too often sacrificed to the speculative manufacturer or to the house agent, and only recently have ideals of town planning, regional planning, and national planning arisen to combat the haphazard regulation of rapid growth. John Burns framed the Town Planning Act in 1909, and individual reformers endeavoured, by creating garden townships for industrial workers, to throw the onus of accumulating evils off the shoulders of industry. To many of us garden cities suggest a philanthropic disregard for economy, but the garden cities have accomplished a great deal.

The earliest of these schemes, begun in 1888, was Port Sunlight, Cheshire. The need for vision is shown by the fact that whereas the works and offices originally occupied 24 acres, and the village 32 acres, they now occupy 547 and 260 acres respectively. Such schemes are isolated attempts at the solution of our plight, and a Town Planning Act is impotent without sound public opinion and conscientious architecture, and the co-operation of landowner and industrialist. Every housing scheme being part of the complex organism we call a town, which is in turn part

The author of this article, which is a plea and not an authoritative statement, is an Australian visiting architect who has discovered the beauty of old Scottish architecture for the first time and has, therefore, some cause to be disturbed by the break in a fine tradition.

The curved stable-block at Aden, Aberdeenshire, so utterly unknown, though so well worth knowing, is particularly suggestive as a centre for community activities in a modern housing scheme.

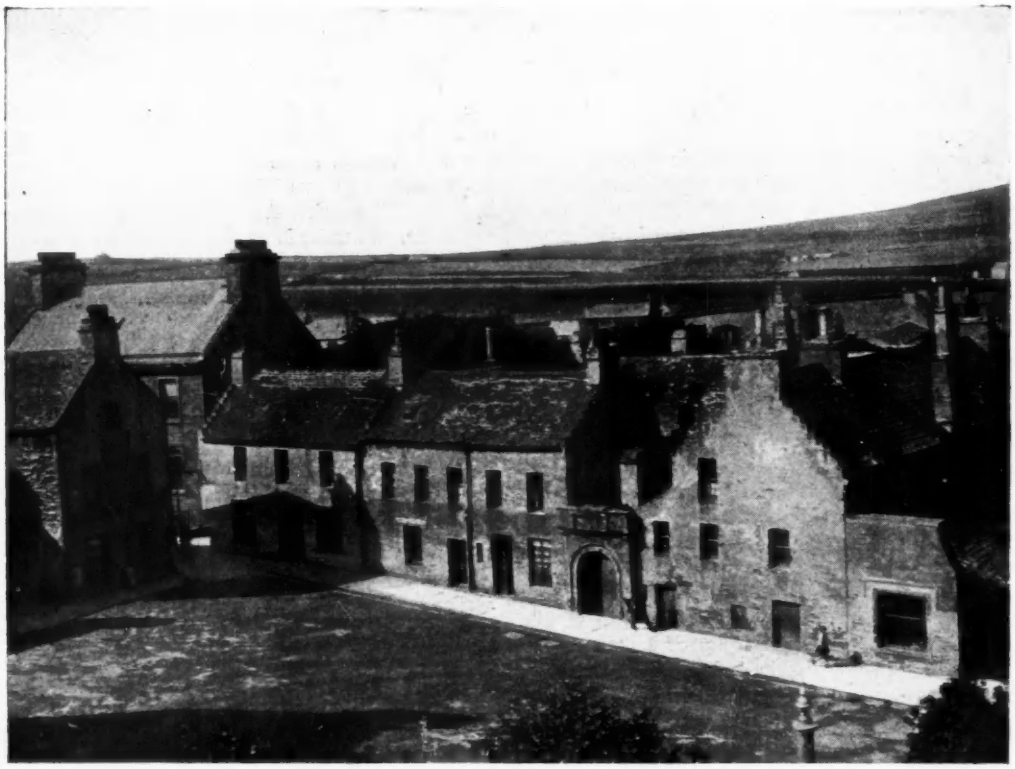
Left, an old house at Bowmore, Islay, suggestive of the salient corner of a township layout. Right, the corner of a recent housing scheme, at Esher Crescent, Callander, Perthshire, showing the use of traditional features.

of a more complex organism, we are naturally striving to ensure the harmony of all its parts by concerning ourselves with the number of houses per acre, their aspect, the spaces round them, their mutual relationships, and their relationship to the thoroughfares which serve them. We are attempting a proper concentration of civic activities, the influence of which is likely to justify the expenditure of our capital.

Only a very few of the recent Scottish housing schemes compare favourably with those abroad. We have not yet approached the excellence of the modern housing schemes in Holland, Denmark, Germany, and Sweden, which, more so than others, have the record of being congenially and financially successful, besides being in particular harmony with the character of the national architecture of each country. Numerous notable examples might be cited from Stockholm, Gothenburg, Copenhagen, Amsterdam, Dresden, Munich, and Stuttgart.

Dutch and Swedish builders seem to have a particular genius for enriching their own traditional styles. Scotland, like Sweden, is a small compact country with an opportunity of reaching a state of enviable perfection. Sweden is very near to that achievement. In recent years there has been a remarkable tendency towards breaking down the national boundaries of traditional styles of building. It must be remembered that exotic influences enrich the national style. In the hands of a tasteful architect the charm of Italy may, for example, be very well blended with that of Wales, as in the Cambrian haven of Portmeirion by Clough Williams-Ellis, but this is only because the peculiar nature of the site gives it a natural affinity for the foreign element. But all the exotic influences in the world are useless in the hands of those who have no care to appreciate or exploit their own traditional style. We are constantly seeing new buildings which convey to us no inkling whatever of modern enlightenment or of inspiration from those enlightened traditions which have bequeathed to us Inveraray, Bowmore, Broadford Bay and Ullapool. And yet these are not the only fine examples. Hundreds more are scattered over Scotland, "from Orkney to the Solway, from St. Andrews and the Lothians to the shores of the Ayr, and to Dunvegan in far-away Skye." With due consideration for modern requirements, would it be so very hard to recapture the dignity and beauty of that older work? An eminent Scottish Colonial has put the matter very well: "An æsthetically apt new township in the spirit of Inveraray's simple intime would be the most dignified, successful and subtle form of advertising imaginable. The *ideal* development, by first-rate architects, of such a scheme might set an example for the Highlands, and for Scotland, that might continue to enhance the country's architectural development for generations."

There have already been a few very successful recent schemes in Scotland. Most interesting are those carried out by the Scottish coalowners. Methilhill, Fife, built by the Wemyss Coal Co., Ltd. (1924-25), is one of the best examples. Another most notable scheme is the rebuilding (1925-26) of Forteviot Village, on the site of the ancient capital of Forthuir-Tabaicht, near Perth, by Lord Forteviot. The houses are grouped on three sides of a village green across which stand the hall and smithy. They are harled brick



Above, Pilmair House, Haddingtonshire, an example of the old domestic architecture with its attractive fenestration. Below, Tankerner's House, Kirkwall, Orkneys. A distinguished group of Scottish houses.

houses as at Methilhill. The freshness and charm of this group of buildings, with long living-rooms penetrating the blocks and windowed back and front, is a credit to the architect, Mr. James Miller. The Wardie houses at Edinburgh, architected by T. Aikman Swan, have both character and simplicity. Some good and some very bad things have been done by the Veterans' Garden City Association. Good examples are their Earl Haig gardens at Leith, Esher Crescent, Callander, and the cottages at Pitlochry and St. Boswells. Professor Abercrombie designed the excellent garden village of Kirk Sandall, near Doncaster (northward, though in England), for Messrs. Pilkington Bros., the plate-glass manufacturers. This scheme includes steel frame, concrete, and brick houses. Other interesting schemes are Lan Fach, Abercarn, designed by Percy Houston; Moss Park, Glasgow; and Craigiebank, Dundee, a scheme of 800 houses designed by James Thompson, city architect of Dundee.

Above, Darnhall, Midlothian. A well-balanced unsymmetrical composition. Below, Traquair House, near Peebles, with a typical Scottish ogee-roofed block at each end of the long terrace.

A block of dignified old houses in Inveraray.

As an example of what can be done, with imagination, Methilhill is very worthy of detailed consideration. Situated on the north shore of the Firth of Forth it is as distinguished as the model villages of the Ruhr. In April 1926 230 houses had been built, the scheme including a shopping centre, bowling-green, and a hall for entertainments and dances. There are seven types of houses of from two to four rooms. Each home has a bathroom, scullery, and pantry, and an outbuilding designed for the storage of coal, tools, and bicycles. The cooking range is installed in the living-room. A particular feature is the provision of adequate gardens. In 1926 the cost of building three of the types, inclusive of road construction and gas and water supply, was given as follows:

	No. of rooms.	Cost. £	Subsidy. £	Net Cost. £	Rental. s. d.	Taxes. s. d.
Type B ..	.. 2	370	90	280	6 3	1 7
Types A and C	.. 3	490	100	390	8 0	2 0
Type D ..	.. 4	510	120	390	8 9	2 2½

These houses are built of brick and are cement-harled and limewashed externally. So far we have not considered the design of the industrial buildings which are the indispensable concomitant of the normal housing scheme. The design of industrial buildings has been so lamentably neglected in this country that the average man looks with wistful disbelief at such examples of distinction as those at Cassel, Dresden, or Unna in Germany, or the Henry Ford works in America. In England, His Majesty's Office of Works has recently made a valuable contribution to industrial architecture in such buildings as the Cosham and Maida Vale telephone exchanges and the radio station at Rugby. In Scotland there is inspiration for warehouses and other industrial structures in such buildings as the old Long John Distillery at Inverallochy and that on the Ericht at Blairgowrie. But it seems that we have still to realize that industry can remain a source of artistic inspiration. Industrialists know already that the neglect of all but material factors brings about a lowered standard of efficiency in their employees; but only a few seem to realize the value of a well-designed plant in fostering institutional pride and a desire for community perfection—the stimulus of a great bulk of our energies. And all this—"A largess universal, like the sun"—for the expense of so little insight! In this connection one may well contemplate the sorry spectacle of Kinlochleven, a severe blow to the cause of Scottish architecture.

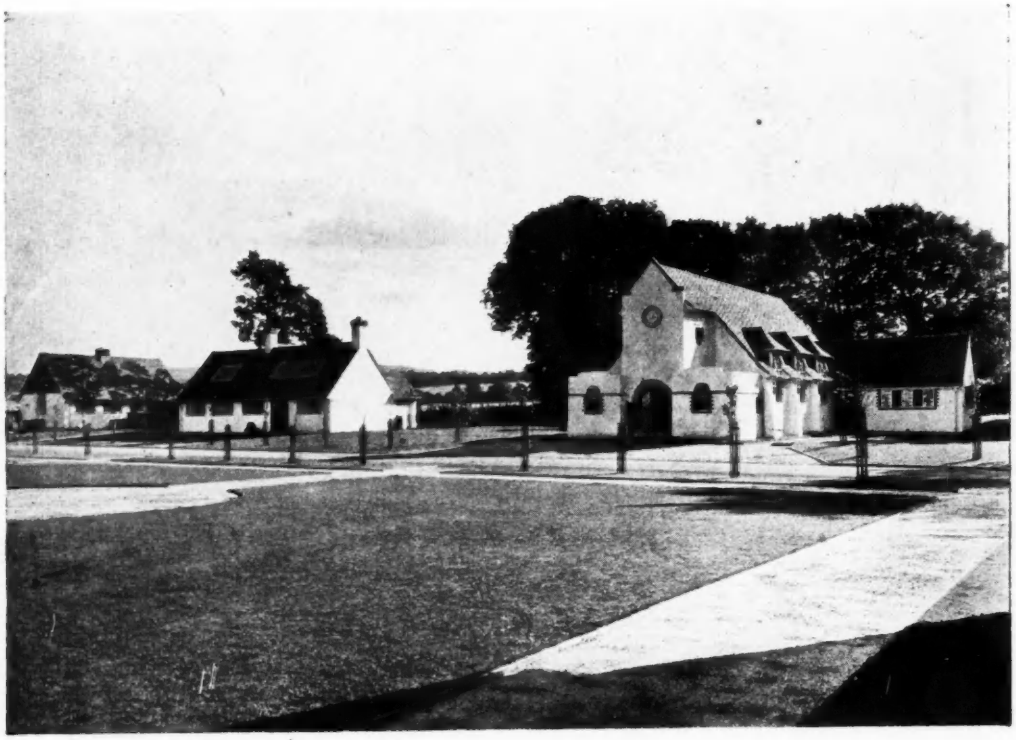
And this brings us to the Highlands. "She"—as the old-time Highlander would say—"she" has her schemes for re-peopling the glens, and the requirements of new industries are soon to be met with. No doubt they will be met to her credit and benefit. In the field of domestic architecture one need but turn the pages of *Details of Scottish Domestic Architecture* (Edinburgh Architectural Association) to realize the wealth of what already exists—a wealth of beautiful, simple, and appropriate architecture which requires only the caress of the present to become the glory of the future. Combine external harmony and judicious selection of materials with fine modern planning. All the elements are ready—the crow-stepped gables of Fife, the round towers of Bowmore, the dormers of Castle Fraser, the ogee roofs of Traquair. Forlorn chalets can be forgotten!

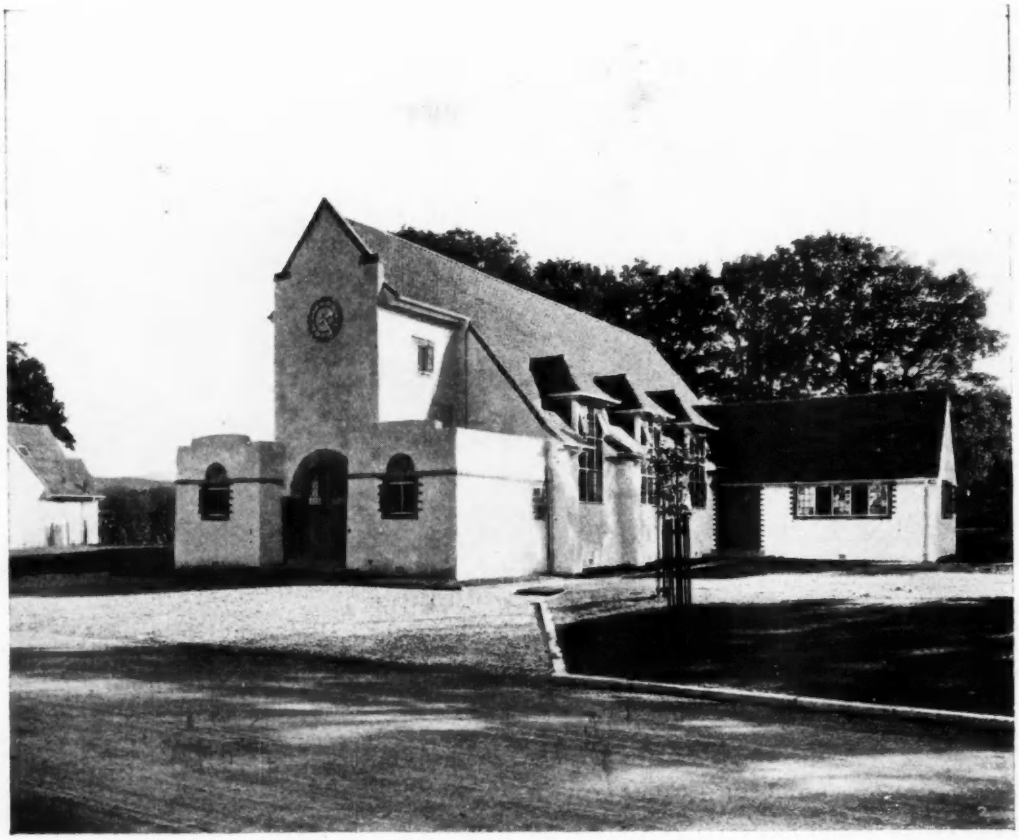
An important consideration is the choice of materials. In the greater part of Scotland, in particular the Lowlands, cavity brick is the structural material. The wall is usually 12 in. thick, two 4½ in. walls, and a cavity of 3 in. A solid 9 in. wall is seldom waterproof. In the Highlands brick is an alien material. There a 21 in. stone wall can generally be built as cheaply as a 9 in. one of brick. In the north-west, Orkney, Shetland, and in the Western Islands, according to the 1917 Royal Commission on Housing in Scotland, a solid concrete wall, where sand and gravel were available, was cheaper than either brick or stone. A gravel-concrete wall, on account of the texture given it by the aggregate, is extremely beautiful. In many places throughout the Highlands these materials are available. Solid concrete walls, 10 in. to 12 in. thick, have great possibilities by reason of their strength and

durability. Attention should be directed to the design of the shuttering to keep down costs as much as the concrete itself.

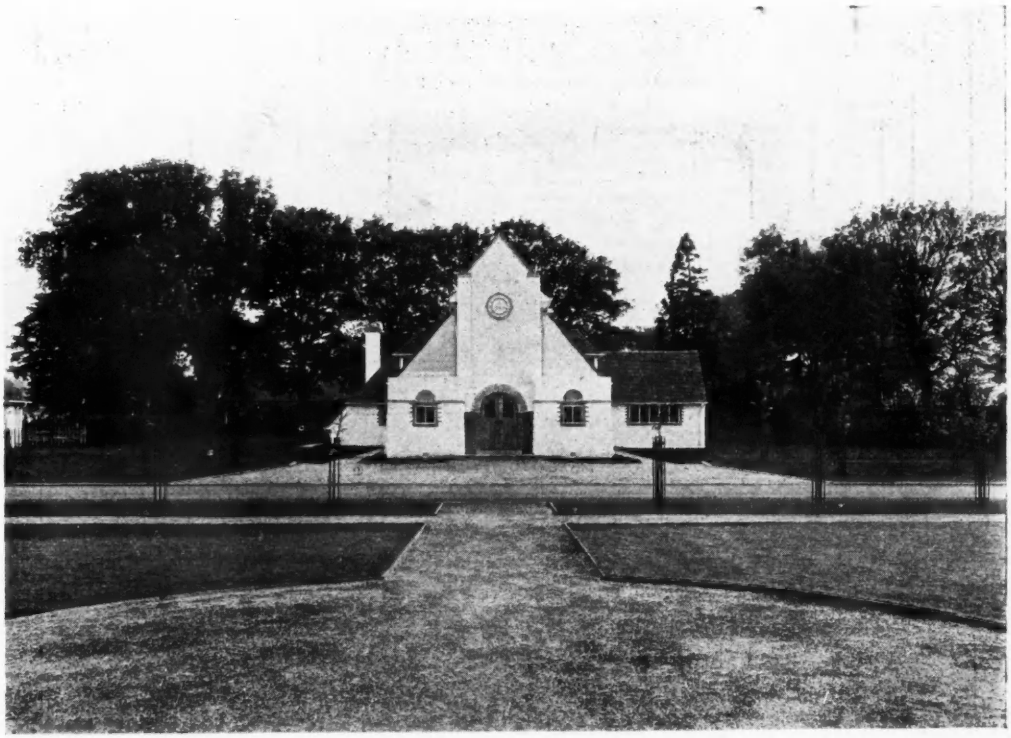
To the stone-rubble walls, generally 18 in. to 21 in. thick, more than to anything else is due the character of Highland architecture. Every Highlander loves these harled and whitewashed walls. Let us hope that the Argyllshire schists of the West Highlands, the granite of Aberdeenshire, and the sandstones of Forfarshire and Edinburgh will come into their own again. It is a curious circumstance that Scotland should now be importing granite from Sweden. In the Highlands slates and thatch are the most appropriate roofing materials. There seems

Above, the laundry block of Winton House, East Lothian, a recent building by Gilbert Ogilvie, late of Ogilvie, Eden and Hodgson. Below, an Argyllshire barn, at Kibmalien, in Morvern.

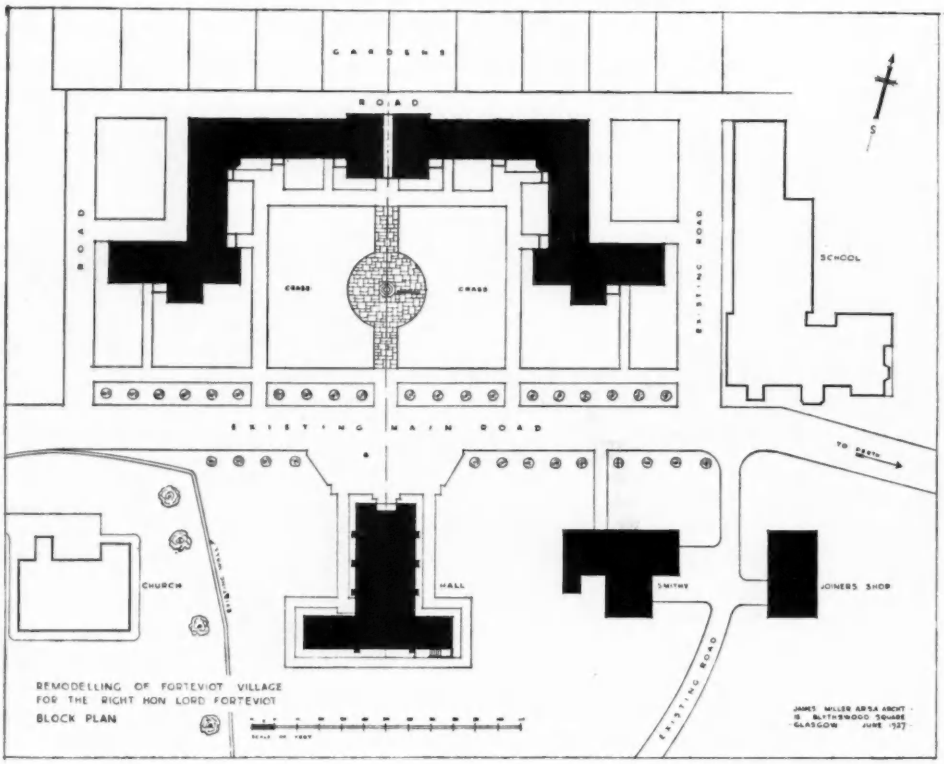




Forteviot Village, near Perth. By James Miller.
Above, hall, smithy, and joiners' shop. Below, the hall.

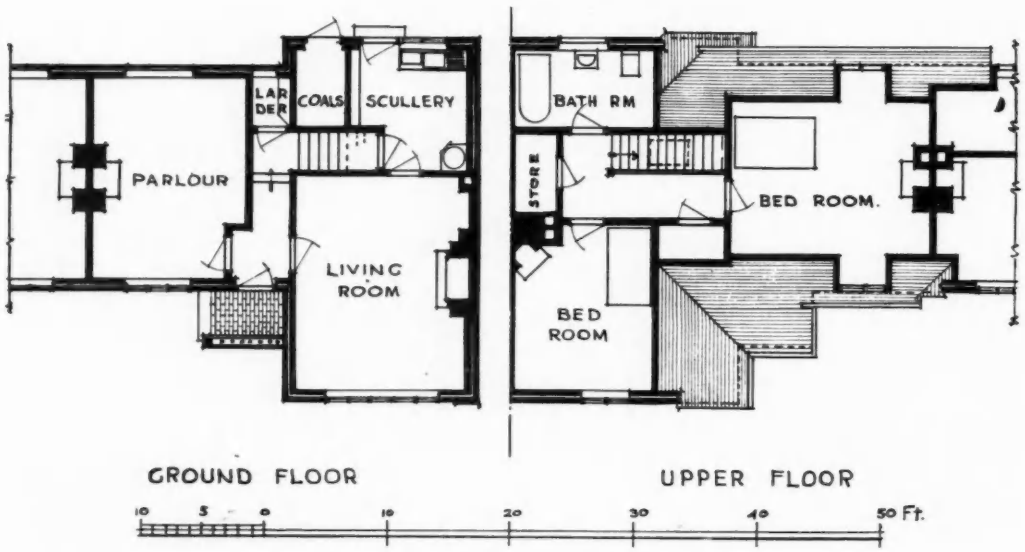


Forteviot Village, near Perth. By James Miller. The hall.



no reason why the art of thatching could not be revived. It harmonizes with the landscape of glen and moor. The old cottager, with happy artistry, thatched his shelter from the wild westerlies. Native slates are good in texture and colour weathering, as might be expected, to a pleasant harmony with the hills, and durable because in their native element. Ballachulish and Easdale slates are the most notable. Carthness slates have a beauty of their own.

Highland house-planning presents no unusual difficulties. The requirements are not hard to understand. By concentrating the sanitary and water fittings and reducing the cubic contents by eliminating over-lofty rooms great economy can be effected. The group planning of any scheme will depend on its particular site—contour and aspect. In the design of the streets and the blocks of houses the greatest skill lies. One or two features of traditional beauty in a simple and straightforward group will give immediate distinction. An ogee roof, a few fine arches



Forteviot Village, near Perth. By James Miller. Above, block plan showing remodelling. Below, typical plan of cottages.

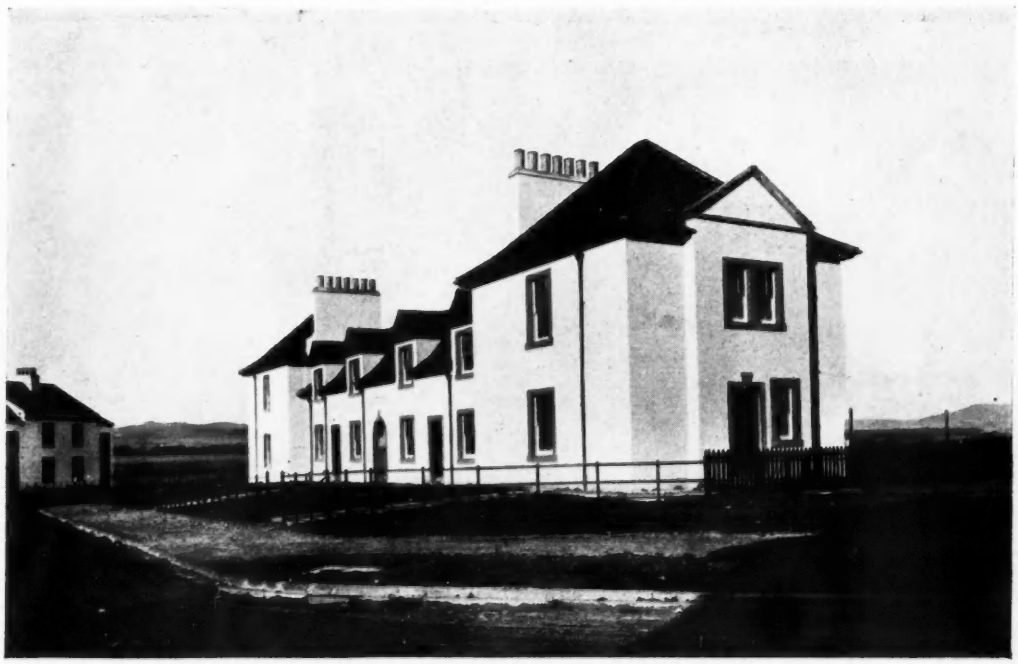
Forteviot Village, near Perth. By James Miller. Above, a general view of the central space. Below, two cottages on the Dupplin estate.

like those at Inveraray, a round church to close the vista, as in the beautiful street of Bowmore: such elements will be employed. A round tower in the corner of an L-shaped building may combine porch and stair and provide a focal point for the ends of two streets. Obviously to build beautifully in the Highlands we only require the will to do so. A little art—a genuinely applied art—is all that is necessary. No philanthropy other than common sense is called for. "Some people," says Dr. Raymond Unwin of the Ministry of Health, "always imagine that art or design consists in sacrificing important practical considerations for the sake of appearance. On the contrary, the ignoring of art, of design, too often means sacrificing the only supremely important considerations to a few petty practical details; as when all that makes a place worth living in is destroyed for the practical advantage of crowding a few more people into it."

Our inspiration is in such buildings as the curved stable-block at Aden (in the Buchan district of Aberdeenshire), which is almost unknown, though so well worth knowing; in Traquair House, Castle Fraser, Pilrig House or Earlshall, built by William Bruce. The beautiful domestic blocks of Inveraray, Bowmore, Cramond and Culross, and Broadford, Thurso, Haddington, Kirkwall and Ullapool cry out for our attention. Kinlochleven one can forget, and forgetting, agree with Gaunt: This "rash fierce blaze of riot cannot last." But we cannot entirely forget that artistically, for a good many years, we have

Methilhill, Fife. By the Wemyss Coal Company. Above, two-roomed houses in Wilson Square. Below, houses in the main roadway.

been unduly indolent and we have no small cause to take to heart an observation made at Aberdeen University by Dr. William Kelly, well-known architect and authority on Scottish architecture: "Mastery of design and construction, intimate and sympathetic knowledge of materials, and skill in workmanship come only by experience accumulated through successive generations who have strenuously endeavoured to realize high ideals in their work. Thus every ancient building was a link in the chain of a great tradition. Built naturally and simply, with local material, the medieval church or castle became ere long almost one with Nature; and from this harmony with site and surroundings came that look of native ease which the lover of beauty rarely misses in ancient work."



Methilhill, Fife. By the Wemyss Coal Company. Above, three-roomed houses in Bowhouse Place. Below, four-roomed houses in Queen's Square.

Above, Craigiebank housing scheme, Dundee. By James Thompson. Apartment flatted houses. Centre, cottages at Pitlochry. Below, Esher Crescent, Callander.

ENGLISH PRECEDENT

18 *Deal is full of good eighteenth-century doors, windows, and small shopfronts, of which this is a good example and one that might well inspire new buildings, for there is no reason why modern requirements for large window area should not be met by increased width of this old one. The squares of glass are large enough to show goods displayed behind them and, for a dealer in fresh meat or provisions, the sliding frame is practical. All the details, reeded columns, frets, etc., are practical joiners' work—probably designed by the man who worked them, and attention may be drawn especially to the way in which the name-tablet is incorporated with the design.*—[NATHANIEL LLOYD.]

CARRERAS'S NEW TOBACCO FACTORY: iii

[BY C. W. BOX]

We have already dealt with the general description of these premises, both as to design and planning, with only a few subsidiary remarks in passing as to constructive details, and we can now proceed to discuss the latter more fully.

Attention has previously been drawn to the fact that generally the construction is of a definitely trabeated type, i.e. column and beam construction throughout. Also it has been noted that for purposes of counteracting unequal conditions of heat and cold, special methods have been adopted by erecting the building in three separate sections, namely, the north, south, and central sections, and at the junction of each of these sections division walls have been built, and expansion joints are formed in these walls above the level of the ground floor.

We have also mentioned the mixture of concrete adopted, and the outstanding feature of the plant consisting of the three concrete distributing towers which have been arranged in positions suitable for the depositing of concrete to any point on the building.

The system of reinforced concrete adopted by Messrs. Considere is of their own patent type.

The method of constructing and placing the reinforcing rods in the columns is interesting; the continuous spiral binding of these rods together is particularly useful in maintaining the maximum of strength, and allowing a saving of space by keeping the columns to the minimum dimension commensurate with the ultimate strength required.

The foundation construction of the columns is particularly interesting, more especially with regard to the fact that in addition to the usual equally spaced tension rods at the base, there have been added (at the junction between the column and the upper surface of the foundation) additional vertical and horizontal rods which greatly strengthen the whole, at a point where additional stresses are to be counteracted.

As is usual with reinforced concrete work, an enormous amount of shuttering and form work is necessary, and Messrs. Considere have wisely inaugurated a system of shuttering for the columns which is very easily capable of being many times reused. It is wrought to suit the section of column employed, and is connected at every 3 ft. by iron straps tightened by means of nuts and bolts. The form work used for beams is of the usual type, but here again it is possible to reuse a large amount of material, as the spans of the building are kept down to more or less equal size, and consequently the depth of the beams themselves varies hardly at all.

The reinforcement employed in the beams is simple and effective with regard to design, and a particularly sound point to be noticed is the method of adding extra compression bars in the top of beams, where concentrated weight is to be picked up; also tension bars in the centre of the beams at the bottom where, of course, the greatest tension stresses are to be counteracted. The stirruping connecting these rods is economically and wisely utilized.

The manner in which these tension and compression rods are hooked in bold formation adds greatly to the soundness of the principles involved. This gives really adequate bonding into the concrete at the points where the breaking or passing over of the main stresses is to be dealt with.

The nine acres of floors supported on the beams and columns described are formed of monolithic panels with cross lattice reinforcement, i.e. the reinforcement is placed very carefully with the spacing adjusted to give the greatest assistance at the most vital point.

In the construction of these floors rapid-hardening "Tunnelite" cement has been used in the mixing of the concrete.

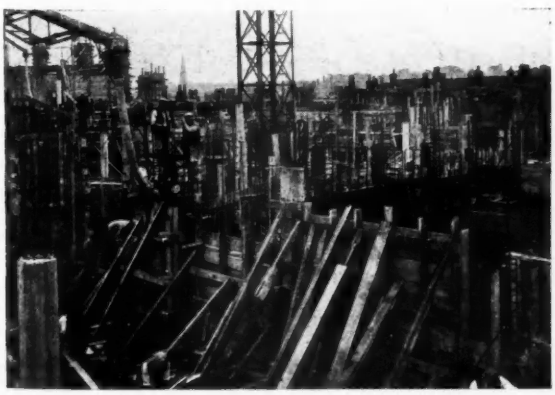
In order to facilitate the future fixing of the floor covering, "Bull Dog" metal clips are put in all floors while concreting is in progress, and turned up after the floor has set to take the 2 in. by 2 in. fillets which are to carry the 1¼ in. maple flooring.

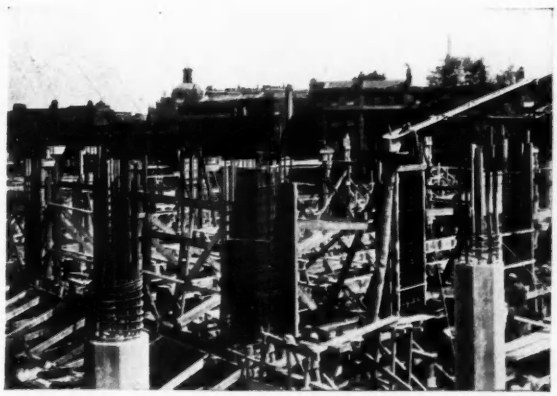
We are also able to illustrate a working detail of the retaining walls of the premises. Here again a rapid-hardening cement has been used in mixing the concrete, in this instance the well-known "Ciment Fondu," which is also aluminous. This point has been mentioned previously, but is worthy of additional notice.

The method of reinforcing the retaining wall is quite interesting, inasmuch as it appears to give great facilities for saving space. Points to be noted are: the great depth of the foundation; the strength given at the junction of this to the wall by interlacing of vertical and horizontal rods; the additional length of main rods on the outer surface and underside, bent completely to a right angle, and bonded in by overlapping horizontal and transverse rods.

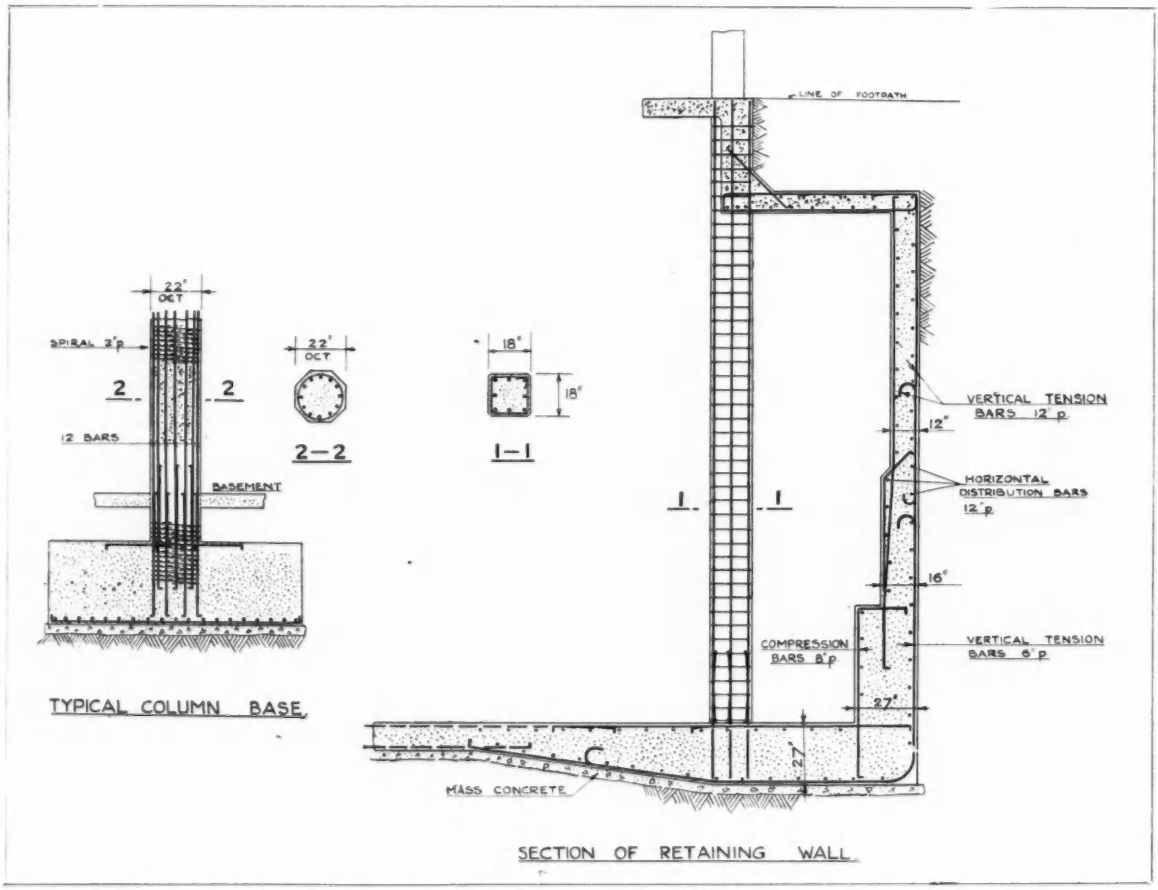
The way the stair flights and landings are formed is very similar to that of the floor slabs, i.e. all the staircases are constructed *in-situ*, and the method of spacing reinforcement is here retained.

[*To be continued*]

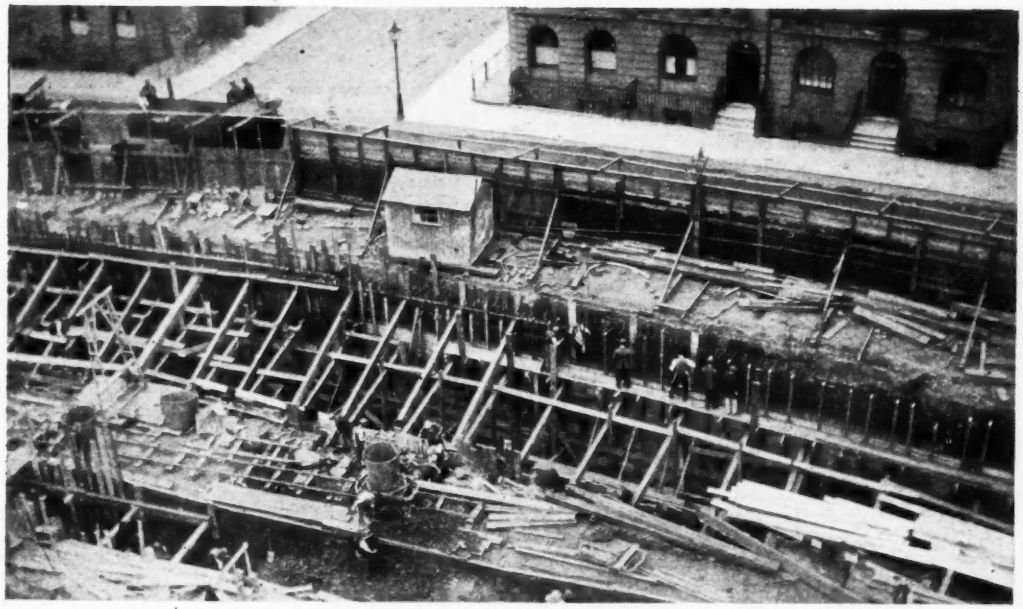


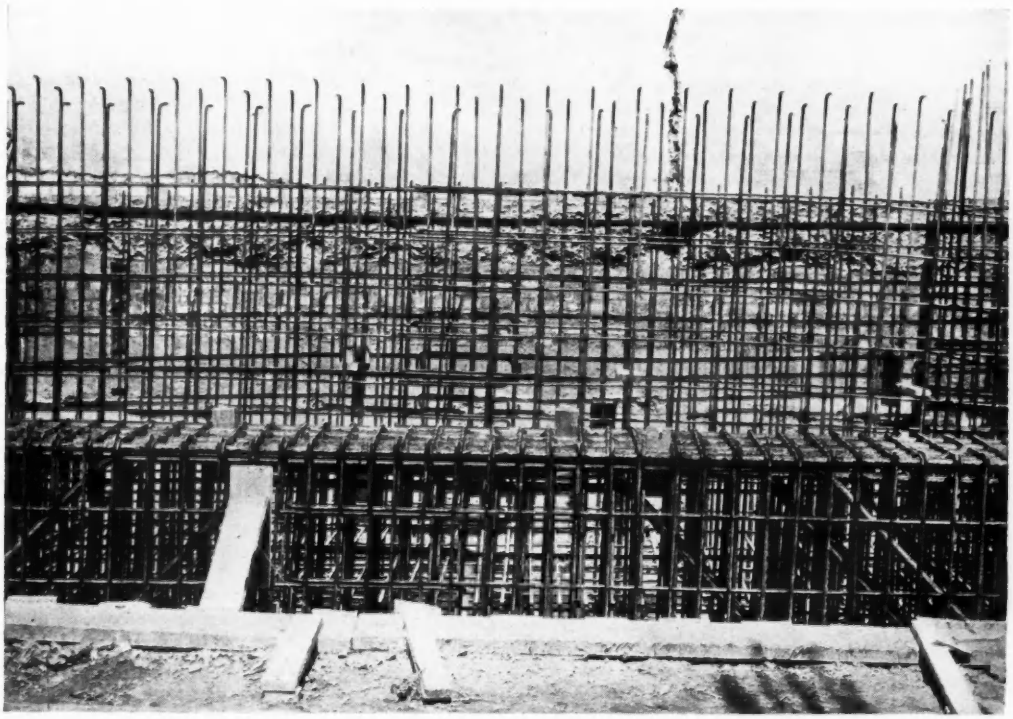


Carreras's new factory, Camden Town. By M. E. and O. H. Collins. Views showing column construction.



Carreras's new factory, Camden Town, London. By M. E. and O. H. Collins. The retaining wall.





Carreras's new factory, Camden Town, London. By M. E. and O. H. Collins. Photographs showing reinforcement of retaining wall.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

The question of the future of Lambeth Bridge came up for discussion in the House of Lords, where Lord Monk Bretton called attention to the powers to rebuild Lambeth Bridge conferred on the London County Council by the London County Council (Lambeth Bridge) Act, 1924, and to the proposals of the Council to adopt a design differing in certain respects from that placed before the Select Committee which considered the Bill for that Act. He said that the London County Council (Lambeth Bridge) Act, 1924, passed through the procedure that applied to private Bill legislation in both Houses of Parliament. It might be said that the policy of a new bridge at Lambeth was fully considered and approved at that time. Moreover, in the private Bill no restrictions were placed on the architectural features of the bridge. It was the case, nevertheless, that when the Bill was before the Select Committee of that House, the design of the bridge was shown. The design showed a bridge of five steel arches, faced with granite and taking an elliptical form.

The Bill passed through all its stages in both Houses and became law, and it was only when the engineer had to provide the detailed drawings for the actual construction that it was found that the granite facings were unsuitable to modern traffic conditions in connection with these elliptical arches. There were also other disadvantages concerning the navigation of the river, and, as a result, a bridge with a new design was worked out which gave more satisfaction as regards its suitability, both for navigation and for the traffic that had to be carried and as to its wearing capacity. The new design provided unfaced steel arches, the spans were wider, and its weight was diminished, which was a very important consideration to engineers who had to deal with the difficult tidal waters of the Thames. There was nothing in this Act which did not allow the London County Council to proceed with its building operations; but it was felt by them that as the Select Committee presided over by Lord Bath had a different design before it—and the London County Council being anxious to act with all conscientiousness—it was desirable that this matter should be called attention to in Parliament, in order that it should be realized that the design which the Council proposed to build on was not the design laid before the committee. He welcomed the proposal that the matter should be the subject of consideration by a Select Committee. The London County Council were satisfied that the new design, on the grounds of traffic, of navigation, and of outward appearance, was a better design, and he hoped that the committee appointed would ask Sir Reginald Blomfield and the engineer whether the new design was not a better design than that passed by Parliament. The County Council were anxious to get on with the building, and had already engaged in considerable financial commitments in connection with improvements and street widenings. They hoped by these means to make very much easier the traffic which passed from the West End to the City, and the matter brooked no delay.

The Earl of Donoughmore moved: " That a Select Committee be appointed to consider the proposals of the London County Council to adopt a design for rebuilding Lambeth Bridge which differs in certain respects from that placed before a Select Committee of this House in 1924, and to report to the House thereon." He said that the work done in 1924 was not wasted. There was no question of altering the conditions which were put upon the London County Council. The only question was that the London County Council wanted to alter the appearance of the bridge to the eye. All the other conditions laid upon them by Parliament would be obeyed. It was quite true that they could have done all they now wanted to do without coming to Parliament at all; but being particularly anxious to play straight with Parliament, Lord Monk Bretton had put down the subject for discussion. The most convenient course would be that the first picture of the bridge, together with the new picture, should be submitted to the committee, so that they would have the two pictures alongside each other and they could then make what report they think right. In view of the importance of the question he suggested seven peers, and there was a date in the middle or end of June on which the committee could meet. One meeting of the committee would be sufficient to finish the whole thing.

The Earl of Plymouth said that the new proposals met the views of the Ministry of Transport, so far as traffic considerations were concerned.

The motion was agreed to.

The following were appointed members of the Select Committee: The Archbishop of Canterbury, the Marquess of Bath, Viscount Burnham, Viscount Ullswater, Lord Desart, Lord Southwark, and Lord Olivier.

LAW REPORTS

ANCIENT LIGHTS DISPUTE. DEVONSHIRE HOUSE SITE

Dare and Rea v. *Strand and Savoy Properties, Ltd. Chancery Division. Before Mr. Justice Eve*

This action raised important issues as to the ancient lights of property in Brook Street, which, it was alleged, were seriously interfered with by the building on the Devonshire House site. Plaintiffs were the freeholders of two houses in Brook Street, the leaseholder of a third, and they sued the defendants for an injunction to restrain them from erecting any house on the site of Devonshire House garden so as to cause a nuisance or obstruction to any of the ancient lights of the windows at Nos. 10, 11, and 12 Stratton Street.

The defence was that the plaintiffs' ancient lights would not be materially interfered with by the building the defendants were erecting.

Mr. C. A. Bennett, K.C., for the plaintiffs, said his clients' premises faced approximately east, and until the recent sale of Devonshire House they had practically an uninterrupted view over the garden. Devonshire House had been pulled down and a large block of modern buildings erected on part of the site. On the east side there was the building occupied by Thomas Cook and Sons, Ltd., and defendants were now erecting a building on the west side of what was formerly the garden. It was obvious that the obstruction to the light coming to the windows of those houses would be a severe one. No. 10 was occupied as a private residence, and Nos. 11 and 12 were now being used as residential flats. After describing the windows in the three houses, counsel said that in some kind of qualified way they were admitted to be ancient lights.

Mr. Gavin Simonds, K.C., for the defendants, said his clients admitted that the windows had existed for upwards of twenty years.

Continuing, Mr. Bennett said the question was whether the amount of light coming to the plaintiffs' windows was affected to such an extent as to cause the nuisance he had mentioned. A substantial amount had been taken away. By modern scientific methods it was possible to say with certainty what the effect of a proposed building would be under certain conditions of sky brightness. For the purpose of arriving at such a calculation, a sky brightness of 500 foot candles was assumed, which meant the light which would be given by 500 candles at the distance of 1 ft. It had been established that that was the brightness which prevailed throughout the winter, late autumn, early spring, a considerable part of the late spring, a considerable part of early autumn, and upon dull days in summer. With that amount of unobstructed roof light the light upon an unobstructed sill would be 250 ft. candles. It had also been definitely ascertained that the percentage of the light upon a sill which fell upon any particular spot in a room on a day when the sky was overcast was always the same and never varied. There was a constant ratio between the two. When the light in any part of a room was 1 ft. candle or less, the room was inadequately lighted. When the light was reduced to that extent people began to grumble and found they could not read anything which required the close

attention of the eye. The matter was reduced to this: could they ascertain when the sky had a brightness of 500 ft. candles that a room was only left with 4 per cent. of the sill light, because then they would only have the light of 1 ft. candle, which was the "grumble point." He would call evidence in support of his case.

Mr. Thomas Henry Smith, architect and surveyor, of Basinghall Street, Mr. Percy John Waldram, the daylight illumination expert, and Mr. John M. Waldram, architect and surveyor, gave evidence in support of the plaintiffs' case.

Mr. Gavin Simonds, for the defence, said if his lordship found there was a legal obstruction of light, defendants would alter their building plans. The plaintiffs were not the only persons to be considered, the defendants having to consider the possibility of other actions by owners in Stratton Street, and they could not take that risk. Counsel felt his responsibility in the matter because of the nature of the defendants' enterprise. They were under bond to the freeholders, and they were under obligations to persons to whom they had let part of the premises to be erected. They had begun the building after due consideration and after obtaining expert advice. The question was whether there remained a sufficiency of light under modern conditions.

Mr. John Murray, architect and surveyor to the Commissioners for Crown Lands, of Suffolk Street, Pall Mall, expressed the opinion that the effect of the proposed new buildings on the Devonshire House site would enhance the value of property in Stratton Street. The effect of developing such sites in the West End had had the effect of transforming private houses in the vicinity into shops and flats.

Mr. Bennett: Will it improve the light at plaintiffs' houses?—No, but it won't do any damage or cause what is usually accepted in London as more than a reasonable amount of obstruction. Witness agreed that a substantial amount of light would be taken away. He did not accept Mr. Waldram's theory of measuring light, which was inconsistent with his experience. There was a radical error in it somewhere, although he did not profess to know where it was.

Mr. Horace Gilbert, of Eton Chambers, Buckingham Palace Road, architect for the defendants' new buildings, said in order to avoid any interference with the plaintiffs' windows he set back the main wall 51 ft. from them, which gave an angle of 52 deg. from sill to the ground floor. He admitted that the buildings would affect the plaintiffs' light, but he thought an adequate amount of light would be left. The height of the main wall of defendants' building would be 68 ft. 6 in.

Mr. Lawrence M. Gotch, an architect, did not think the loss of light to the plaintiffs' premises would be substantial.

His lordship found in favour of the plaintiffs and granted them an injunction to restrain the defendants from so erecting their building as to create an angle of obstruction larger than one of 45 deg. from the sill on the ground-floor windows of No. 10 Stratton Street, with the costs of the action. Proceeding, his lordship said the defendants' proposed new building would, according to plaintiffs, darken the several floors of their houses so as to render them less comfortable according to the ordinary notions of mankind, and would constitute a serious nuisance to them and to their tenants. Defendants could not contest that there would be some interference with the access of light to the plaintiffs' premises, but they denied that it would be substantial or sufficient to create an actionable nuisance. It was to be noted that until comparatively recently, plaintiffs' premises enjoyed an unusually favourable access of light and their windows overlooked the gardens at the rear of Devonshire House. The real contest arose with regard to the ground and first floors of plaintiffs' premises, and on the evidence he was prepared to hold that there was such an interference with the light on the ground floor as to create a substantial nuisance. Defendants, if they continued their building, would unduly infringe plaintiffs' legal right to light. He appreciated the position of persons who, having planned a beautiful building, found themselves in difficulties with their neighbours and were compelled to either alter their building or submit to the payment of substantial damages. In this case, however, the question of damages did not arise. Defendants themselves had invited him, if he did grant an injunction, to intimate the limit of obstruction which would not, in the opinion of the Court, involve an infringement of the plaintiffs' rights. He had as an illustration the new buildings erected in Berkeley Street, and he gathered from the evidence that if a new building was set back to an angle of 45 deg. of obstruction to the sill windows on the ground floor on the opposite side of a street it would deprive the owners of that property of a good deal of light, but it would not be a deprivation which would amount to an actionable nuisance.

CORRESPONDENCE

ANCIENT LIGHTS. MAYBURY *v.* SPICKERNELL

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—Referring to your report of the above case in THE ARCHITECTS' JOURNAL, may I suggest that before architects assume that the Courts will of necessity regard as inocuous an obstruction 35 ft. high at a distance of 10 ft. from a living-room window, it might be as well to await the appeal which is, I am informed, pending in this case.

It would also be as well to note that a few days later an injunction was granted in respect of living-rooms in Stratton Street, Piccadilly, which limited a projected building to an angle of 45 deg. from the sill of the plaintiff's ground-floor window.

PERCY WALDRAM

WHY I WROTE THIS ADVERTISEMENT

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—I was most interested to read the clever and entertaining letter from Mr. F. R. Jelley, and appreciate the advertisement he so kindly (or perhaps inadvertently) gave to my firm. Should I have the honour of a call from Mr. Jelley I can assure you my last wish would be to "throw him out" as he suggests.

On the contrary, I should heartily welcome him—first, for his sense of humour, and, secondly, for his criticism of the disfiguring of our countryside by ugly advertisements, unsightly multi-coloured petrol pumps, etc.

No one regrets more than I that a large percentage of these blots on our landscape relate to the motor trade; personally I have always objected to this spoliation of our beautiful countryside.

My advertisement and the letter of explanation was in no sense "architect-baiting," but merely a criticism by one of the millions of people who are not architects. Surely, honest criticism—constructive or otherwise—should be welcome; personally I welcome it.

Should Mr. Jelley call at 150 New Bond Street (Mayfair 2904) any criticism he may make of the cars in my showrooms would be gratefully received, and perhaps he would leave having signed an order for a new motor-car. At any rate, I could demonstrate to him that the exhaust pipes on cars are always a few inches above the road, and therefore incapable of belching odious fumes in the *faces* of pedestrians, unless the pedestrians are foolish enough to recline on the kerb. This, I would wager, Mr. Jelley could never be guilty of.

At the same time I might demonstrate that it is impossible to scorch trousers with the cool gases that (in the cars of my firm sell) silently depart from the "bits of pipe" behind motor-cars.

WARWICK WRIGHT

ANNOUNCEMENTS

The committee of Leplay House E.T.A. wish to inform all those interested in historical, geographical, and social studies, that during the coming summer vacation visits have been organized to the following places: 1: To South Sweden, visiting Gothenburg, Stockholm, afterwards going to Lapland. The return journey to include the famous Gota Canal. 2: To Aldrans, above Innsbruck, in the Austrian Tyrol. 3: To St. Peter in the Black Forest, "students' camp." For full particulars of these visits apply to Miss Margaret Tatton, F.R.G.S., 65 Belgrave Road, S.W.1.

TRADE NOTES

The motor travelling caravan of the National Radiator Co., Ltd., with the working Ideal Cookanheat installation, will, on June 6 and 7, attend the Three Counties Agricultural Show, Hereford, and on June 11 be at The Quarryette Pavilion, Aberystwyth.

The exhibit of Messrs. W. H. Gaze and Sons, Ltd., at the Chelsea Flower Show was awarded a silver cup. It comprised a garden practically formal, enclosed by hedges and an old wall with iron gate and lean-to summer-house. From a paved terrace could be seen a simple but effectively planted pool. The borders were raised above the general lawn level by a dry stone wall, and were gaily planted in colour schemes.

The second ordinary general meeting of the Holborough Cement Company, Ltd., was held at Winchester House, Old Broad Street, E.C., Mr. Henry S. Horne (chairman of the company) presiding. The chairman proposed that the directors' report and accounts be taken as read, and this was agreed to. The chairman said that since the last meeting the whole of the unissued capital, amounting to £46,918 had been issued, making the total issued share capital £500,000, there being no prior charges whatsoever. During the year there had been expended on extensions to the plant and various important accessories a further sum of £67,591 0s. 9d., making a total for the two years of £130,266 8s. 9d. This substantial capital outlay had made the Holborough Cement Works one of the best mechanically equipped and most up-to-date cement units of its size in the United Kingdom. In consequence of the various mechanical additions and plant extensions, a material decrease in manufacturing costs had been effected, and made it possible for the company to meet satisfactorily the keen competition prevailing. Mr. J. T. Phelan joined the Board of the company last year as production director. Mr. Phelan had had a wide experience of cement manufacturing, and as a result of his policy a very material saving in manufacturing costs and a high level of production efficiency has been achieved, and he considered they were very fortunate in having the able services of Mr. Phelan on that important side of their business. The re-arrangement in relation to personnel, coupled with the comprehensive reorganization of the sales department had been efficacious in all directions, the sales of cement having steadily increased from the time these changes were effected and the full tonnage capacity of the plant was now finding a ready market.

They had, as was essential in any modern cement plant, increased their storage capacity over 150 per cent., as against last year, by building a modern silo type of warehouse, which permitted storing cement on specific contracts and being independent of the weather. In addition, these silos were so arranged that there was no deterioration in the quality of cement, and they also provided special arrangements for dealing with their Vitocrete brand, which was meeting with universal approval as a result of its outstanding qualities as a super rapid-hardening cement. They had also, in view of the great increase in business, made considerable enlargements to their wharf, thus allowing for quicker dispatch of barges, and, by the carrying through of a deepening scheme, they had been able to handle a far bigger tonnage. Their shipments for the end of the financial year showed an increase of 100 per cent. over the previous year. The saving in manufacturing costs was approximately 20 per cent., and the increased production from the kilns in service was also approximately 20 per cent., so he considered the sum spent of £70,289 8s. 7d. had been well spent and justified at every angle, and that these figures constituted striking progress.

The annual general meeting of Beebys Brick Company, Ltd., was held at Winchester House, Old Broad Street, E.C., Sir Walter Lawrence, J.P. (chairman of the company), presiding. The chairman moved the adoption of the directors' report and audited statement of accounts for the past year, and Mr. W. J. Garner seconded the resolution. The chairman, before putting the resolution to the meeting, said that the directors were very pleased to be able to submit at the second annual general meeting since the company became a public one, a balance-sheet which in every way showed that the anticipations and hopes referred to by him at the last meeting had been realized. During the past year the output showed an increase of 12 per cent. over that for the preceding year, but the works were now producing to the full capacity of the present plant, and the Board had under consideration the advisability of building a further kiln and installing additional plant with a view to further increasing the output capacity. With the continued increasing demand for the firm's bricks during the first half of the past year, the Board felt justified in declaring interim dividends of 5 per cent. per annum on July 1 and October 1, and it had been hoped to make a similar payment in January, but owing to a rather considerable falling off in the demand at the end of the year, and a consequent reduction in prices, the directors deemed it prudent not to pay a further interim dividend. The demand again improved towards the end of the company's financial year, and the whole of the output is now being disposed of. Although the average price obtained for bricks during the past year was lower than for the preceding year, the net profit, after providing for depreciation, was £12,000 better, which was entirely due to the increased output and reduction in costs through the lower price of coal and improvements to the machinery. During the year over £19,000 has been invested in trustee securities, and the present market price of the whole of the investments was in excess of the cost at which they stood in the books. Taking the total of the stock, investments, debtors and cash, it would be seen that this exceeded the liabilities by over £65,000, as compared with £28,000 at March 31, 1927. That was a very sound position. During February last the whole of the shares of the company were acquired by the British Cement Products and Finance Company, Ltd., on behalf of Wiggins & Co. (Hammersmith), Ltd., who were well known in the building industry, and with their very extensive selling organization and the assistance of these associated companies, the Board had every reason to hope that the future output of Beeby's bricks would find a ready and profitable market which might not otherwise have been so easily obtained by the company, working alone, when the exceptional demand of the past few years necessarily slackens. With its strong financial position and associations, the Board felt confident that the company could now successfully meet any reasonable competition which might arise.

COMPETITION CALENDAR

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

July 14. The Lewisham Borough Council invite architects of British birth and nationality to submit designs in competition for the Town Hall, shops, and offices, proposed to be erected on the site of the east side of, and adjoining the present, Town Hall buildings. Assessor: Mr. Winton Newman, F.R.I.B.A. Premiums: £350, £250, £150. Particulars from the Town Clerk, Town Hall, Lewisham, S.E.6.

July 30. New Town Hall in West Marlands, for the County Borough Council of Southampton. Assessor: Mr. H. Austen Hall, F.R.I.B.A. Premiums: £500, £300, £150. Total cost not to exceed £385,000. Particulars from the Town Clerk, Municipal Offices, Southampton.

September 1. The Council of the R.I.B.A. have accepted an offer from the directors of the Gloster Aircraft Co., Ltd., and Messrs. H. H. Martyn & Co., Ltd., to give a prize for the best imaginative scheme for a London aircraft terminus suitable to the supposed requirements of air traffic fifteen years hence. The competition is open to Associates, elected Students, or registered Probationers of the R.I.B.A. below the age of thirty years on September 1. The competition will be in two stages. From the preliminary competition ten competitors will be selected for the final, and each will be paid £5 for his expenses. The closing date for the final is January 10. There will be two prizes in the final, a first prize of £125 and a second prize of £25. The following have consented to form the jury to award the prizes: Sir Sefton Brancker, K.C.B., Mr. C. Cowles-Voysey, Mr. E. Vincent Harris, Sir Edwin Lutyens, R.A., Major R. Mayo (consulting engineer, Imperial Airways, Ltd.), Mr. T. S. Tait, Mr. Maurice E. Webb, Mr. G. E. Woods-Humphery (general manager, Imperial Airways, Ltd.). Particulars may be obtained free on application at the R.I.B.A.

September 5. School at Rickmansworth to accommodate 400 senior girls, for the governors of Royal Masonic Institution for Girls. Assessor: Mr. H. V. Ashley, F.R.I.B.A. Premiums: £750, £500, £400, £300 and £200. Particulars from Mr. M. Beachcroft, 31 Great Queen Street, W.C.2. Deposit £2 2s.

"NOW THUS—NOW THUS"

In publishing a history of St. Helens and window-glass making during the past hundred years, Messrs. Pilkington Bros., Ltd., appropriately borrow the Pilkington family motto: "Now Thus—Now Thus," by way of title. There is a tradition that Leonard Pilkington, Lord of Pilkington Tower, from whom the Pilkington family trace their descent, held a command under Harold, the last of the Saxon Kings, at the Battle of Hastings, 1066. During the pursuit following upon the death of Harold, Leonard Pilkington disguised himself as a mower and so escaped from the victorious Normans. To commemorate the event to which he owed his life, he took for his crest a mower and scythe with the motto, "Now thus—Now thus," intending thereby to indicate the rapid change from a man of arms to a man of peace. After the Battle of Bosworth, 1485, Henry VII rewarded Sir Thomas Stanley for his assistance by creating him the first Earl of Derby, and shortly afterwards conferred upon him almost all the estates forfeited in the North, including those of the then Sir Thomas Pilkington, who fought on the side of Richard III, the defeated King. For more than 100 years the history of the glass-making branch of the family has been closely interwoven with that of St. Helens. Its members have found, and still find, time to take a very active interest in the affairs of the town and district, the result being that there are few public bodies or institutions with which they are not connected. The year 1926 was the centenary of Pilkingtons' connection with the glass-making industry and, by a coincidence, the Jubilee year of the plate-glass manufacturing side of their business.

After dealing with St. Helens and glass manufacture before 1826, the old Ravenhead Works, which were established by the British Cast Plate Glass Company in St. Helens in 1773, before which plate glass made in England had been blown and not cast, and the early prices and sizes of plate glass, we reach 1826, when the Pilkingtons enter the glass-making industry, and learn how the first and subsequent generations of the family built up the firm to its present important position in the industry. In 1865 her late Majesty Queen Alexandra, then Princess of Wales, visited the Ravenhead Works. In July 1913 the firm was honoured by another Royal visit, that of their Majesties King George and Queen Mary, who made a tour of inspection of the Cowley Hill Works. His Majesty marked the occasion of his visit by "starting up" a new 6,000 h.p. Parsons-Siemens geared turbo-generator, which the Queen graciously christened the "King George." During the Great War many of the directors and members of their families held commissions in His Majesty's forces, and of the 5,000 employees who served, nearly 500 of these gave their lives for their country. The firm, early in the war, gave up a large part of its works and plant to the making of munitions, and by the end of the war the employees numbered 1,300 females and 500 males. The factory held a very high place in the country for output and efficiency. In the open country four miles outside Doncaster the firm decided to build a garden village to provide homes for the workpeople. Today the garden village contains upwards of 350 houses in addition to a church, school, village hall, recreation rooms, and other village institutions. A garden village scheme was also contemplated on the Eccleston Hall estate on the outskirts of St. Helens, and towards this about 125 houses and bungalows have been erected for employees. The Estate Department of the firm has a large nursery which provides trees, shrubs and plants for the garden villages and recreation grounds both in St. Helens and Doncaster.

Today the firm owns three large glass works in St. Helens, in addition to collieries and a brick works, works at Doncaster and Maubeuge, and depots or representatives in many parts of the world. Its employees now number over 13,000, of whom more than 1,000 have over twenty-five years' service. There are still working fourteen men who have been with the firm for fifty years or more. The number of fifty years' service men has recently been reduced owing to the introduction in 1925 of a workmen's pension scheme, which contemplates retirement at the age of sixty and not later than sixty-five. There are at present ninety-two pensioners with over fifty years' service, and 104 with between forty and fifty years' service with the firm. The welfare of their employees has always been a matter of great interest to the directors. A superannuation fund for members of the staff was established in 1918. Thrift is encouraged by a works savings bank, which pays a generous rate of interest on deposits, and also by a scheme of life insurance at reduced premiums. Each works has its own surgery and canteens, and dental clinics have been established at the sheet works, Cowley Hill Works, and Doncaster Works. Recreation clubs, attached to the St. Helens and Doncaster Works, make provision for all forms of recreation and sport. A staff association formed in 1922 now has a large number of members for whom it provides educational and social entertainment.

THE BRITISH INDUSTRIES FAIR

The British Industries Fair (Birmingham), under the patronage of the Lord Mayor of Birmingham, organized and controlled by the Birmingham Chamber of Commerce (Incorporated), and under the ægis of the Board of Trade and the Birmingham City Council, will be held, concurrently with the London section, at Castle Bromwich, Birmingham, from February 18 to March 1, 1929. His Majesty's Government have again agreed to spend a sum of money not exceeding £25,000 for the purpose of publicity for the Fair at home and abroad. This publicity will cover both the London and Birmingham sections, and will be invaluable to exhibitors, as it will no doubt attract many additional thousands of visiting buyers. The success of the nine previous Fairs has been pronounced and progressive, but there was a unanimous consensus of opinion that the ninth Fair, held in February last, was from every point of view by far the most representative and successful of the series. Although the buildings had been extended by 70,000 sq. ft. for the eighth Fair, and were increased by a further 130,000 sq. ft. for the ninth Fair, all the available space was occupied, the number of exhibitors showing an increase of 25 per cent. on 1927 and 80 per cent. on 1926. The ninth Fair was visited by over 115,000 potential buyers from home and abroad, an increase of almost 50 per cent. on the previous Fair. Finally, the amount of business actually transacted, and the number of definite inquiries received were so great as to justify the expectations of practically every exhibitor, and to ensure, beyond doubt, the continuity and permanency of what is one of the greatest national trade Fairs ever organized solely for extending the sale of British products throughout the world. The tenth British Industries Fair (Birmingham), to be held next year, in the permanent and considerably enlarged exhibition building at Castle Bromwich, which, with a total floor area of 400,000 sq. ft. (all under one continuous roof), forms the largest exhibition hall in the country. The venue of the Fair is the centre of a huge industrial area, and is universally admitted to be convenient for displaying the commodities detailed in the schedule of exhibits, the trades represented in this schedule forming the most important section of the country's trade. The Fair is open only to exhibits made by British manufacturers and to British wholesale firms taking the whole output of a British factory or holding the sole selling rights of patented or proprietary articles manufactured in the British Empire. Application for space should be made to the General Manager, British Industries Fair, Chamber of Commerce, Birmingham, at the earliest possible date.

R.I.B.A. STATUTORY EXAMINATIONS

The R.I.B.A. statutory examinations for the office of district surveyor under the London Building Acts, or building surveyor under local authorities, will be held at the R.I.B.A., London, on October 17, 18, and 19. The closing date for receiving applications for admission to the examinations, accompanied by the fee of £3 3s., is October 1. Full particulars of the examinations and application forms can be obtained from the secretary, R.I.B.A.

THE WEEK'S BUILDING NEWS

The LEICESTER Corporation has agreed to sell to the Leicester Diocesan Church Extension Board a site on the Park estate for the erection of a church.

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The WOOLWICH B.C. is to borrow £57,000 for further housing advances.

*

The L.C.C. will shortly place tenders for the erection of two further blocks at East Hill estate, WANDSWORTH, the cost being estimated at £25,000. A feature of this scheme is the provision in each tenement of a lodger's bed sitting-room.

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Plans passed by the PORTSMOUTH Corporation: Four houses and garage, The Spur Road, Cosham, for Mr. G. F. Palmer; additions to warehouse, 79-81 King Street, for Messrs. Reynolds & Co.; factory, The Danish Bacon Co., Ltd., Francis Avenue, for Mr. F. J. Privett; workshop, Goldsmith Avenue, for Portsmouth Commercial Motors; four houses, off St. Colman's Avenue, Cosham, for Mr. C. W. Stigant; flats, Hawke Street, for Charity Organization Society; business premises, 27 Kingston Crescent, for Messrs. Lillie & Co.; business premises, 248 Fratton Road, for Mr. F. J. Privett; new street, Baffins Estate, for Messrs. Morey and Flowers; store, Haigs Motor Co., Ltd., Florence Road, for Mr. S. A. Evans; factory, 382-384 Commercial Road, for Messrs. Papps and Son.

*

Plans passed by the CROYDON Corporation: Sixteen houses, Osborne Road and Canham Road, for Mr. P. Richardson; mission hall, Portland and Werndee Roads, for Mr. W. B. Booth; dance hall, London Road, for Mrs. A. Clark; additions and alterations, 7 George Street, for Messrs. Allders, Ltd.; billiard room, 10 South Norwood Hill, for Mr. H. E. Davey; two houses, Abingdon Road, for Messrs. Truett and Steel, Ltd.; six houses, Mount Park Avenue, for Messrs. Morgan, Baines and Clark; twenty houses, St. Oswald's Road, for Mr. F. W. Milton; alterations and additions, Shirley Inn, Wickham Road, for Messrs. Chart, Son and Reading; ten garages, 19-27 Springfield Road, for Mr. R. Pierson; four houses, Croham Valley Road, for Messrs. R. Costain and Sons; six houses, Hatch Road, for Messrs. Truett and Steel, Ltd.; alterations and additions, 31 North End, for Messrs. T. Jay Evans and Sons; five shops, Thorton Road, for Mr. P. Richardson; forty houses, Grangecliffe Gardens, for Messrs. G. Poulton and Son.

*

Plans passed at HIGHGATE: Extension, Queen Mary's Maternity Home, Upper Heath, for Messrs. H. V. Ashley and W. Newman; house, Redington Road, for Messrs. Randall and Pile; house, Milfield Lane, for Mr. C. Pittman.

Messrs. F. Robinson & Co., Ltd., are to extend the Canister Works, Southcoates Lane, HULL.

*

The Notts County Council has approved plans for alterations at the Picture Palace, JACKSLADE, in order to make the building suitable for stage plays.

*

Plans passed by the HULL Corporation: Nine houses, Claremont Avenue, for Mr. W. Garbutt; two houses, Belgrave Drive, for Mr. F. C. Polley; six houses, Victoria Avenue, for Mr. H. J. Caley.

*

Plans passed by the OLDHAM Corporation: Alterations, Dr. Syntax Hotel, Market Place, for Oldham Brewery Co., Ltd.; alterations, Brunswick Hotel, Cromwell Street, for Messrs. W. T. Rothwell, Ltd.; six houses, Chamber Road, for Mr. G. Collins; heating chamber, Grosvenor Street, for Mr. H. Phillips; alterations, Union Street, for Messrs. F. and G. Pollard; working men's home, Middleton Road, for Mr. M. Mooney; shop, Ashton Road, for Mr. I. Butler.

*

The HULL Corporation Housing Committee has instructed the city architect to submit layout plans showing alternative methods of rehousing on the land at the corner of Southcoates Lane and Hedon Road, and on the land at the corner of Madeley Street and Goulton Street.

*

Plans passed by the WATFORD Corporation: House and shop, St. Albans Road, for Mr. S. H. Underhill; tennis pavilion, Cassio Road, for the West Herts Sports Club; workshop, 194 St. Albans Road, for Mr. W. H. Leeming; workshop, Euston Avenue, for Mr. A. E. W. Bowden; workshop, 2 Hazel Tree Road, for Mr. R. Burrows; eight houses, The Coppice, for Mr. E. W. Puddifoot; alterations, 125 and 127 High Street, for Messrs. W. E. Pearkes; additions, Whippendell Road, for the Sun Engraving Co.; church hall, Leggatts Way, St. Mark's Parish Hall.

*

The PLYMOUTH Corporation is to borrow £80,000 for the purpose of making an advance to the Devonport Dockyard Employees' Housing Association, Ltd., under the Housing Act, 1925.

*

The ROTHERHAM Corporation Housing Committee has decided to invite tenders for the erection of 276 houses on the Herringthorpe estate.

*

Plans passed at STREATHAM: Four houses, Valleyfield Road, for Mr. F. J. Barrett; sixteen houses, Valleyfield Road, for Mr. E. H. Dance; shops and flats, 40 Streatham High Road, for Mr. P. W. Meredith.

Plans passed by the BRISTOL Corporation: Six houses, Groveleave, Shirehampton, for Mr. A. Cooper; eight houses, Charis Avenue, for Mr. T. H. Boddie; twenty-two houses, Filton Avenue, Horfield, for Mr. W. J. J. Lee; thirteen houses, Speedwell Road, for Messrs. T. A. Monks and Sons.

*

The STALYBRIDGE Corporation has asked the borough engineer to prepare plans for the erection of 106 houses of a cheaper working-class type on the Hague estate.

*

Plans passed at HOLBORN: Seventeen garages, Woburn Square, for Messrs. C. Fitzroy Doll and Sons; adaptation of "Brown Bear" public-house, for extension of the Italian Hospital, Devonshire Street, for Mr. H. W. Binns; warehouse, Cockpit Yard, for Messrs. Drage's, Ltd.

*

Plans passed at TULSE HILL: Skating rink, Tulse Hill, for Messrs. Andrews and Peascod; nine garages, Craingnair Road, for Mr. E. W. Wallis.

*

Plans passed at ELTHAM: Fifty-one houses, Larchwood Road, for Mr. R. Kevan; two houses, Foot's Cray Road, for Mr. W. Childs; pavilion, Foot's Cray Road, for Messrs. Kevan and Buen; 124 houses, Archery Road, Stroungbow Road, and Wellhall Road, for Mr. F. C. W. Barrett.

*

Plan passed at WOOLWICH: Factory building, Lonbard Road, for Mr. W. M. Epps.

*

Plans passed by the NORTHAMPTON Corporation: Sub-station, St. Andrew's Road, for Messrs. Pettit and Sons, Ltd.; six houses, Thorpe Road, for Messrs. S. G. Sale & Co.; alteration and additions, 57 St. Giles Street, for Mr. R. Pearson; two houses, Christchurch Road, for Messrs. Stafford and Agutter; alterations and additions, Abington Street, for The Central Y.M.C.A.; six houses, Loyd Road, for Northampton Co-operative Society, Ltd.; thirteen houses, The Drive, for Messrs. S. G. Sale & Co.; three houses, Brookland Road, for Messrs. Lack and Revitt.

*

The Wesleyan trustees are to erect a church in Abbey Road, SMETHWICK.

*

The MANCHESTER Corporation has passed plans showing proposed alterations with additional lairage and slaughter-houses on land at the committee's Claremont Road depot, Rusholme, leased to the Manchester and Salford Co-operative Society.

*

The CITY OF LONDON Corporation has agreed to an amended plan for a widening in front of the premises of the National Provincial Bank at the corner of Princes Street and Mansion House Street.

Plans passed at CATFORD: Two houses, Chinbrook Road, Grove Park, for Mr. A. Durbin; ten houses, Warren Road, for Messrs. Walker, Clinging & Co.; pavilion at sports ground, Ravensbourne, for Messrs. Filed Roscoe & Co.; 109 houses, Charlton Park estate, for Messrs. Fretho, Ltd.

★

The Kent Education Committee is to extend the CHATHAM County School for Girls.

★

Plans passed by the MARYLEBONE B.C.: Buildings, St. John's Wood Road, for Messrs. E. Howard and Partners; iron and glass shelter, Messrs. Selfridge, Oxford Street, for Sir John Burnet and Partners; houses, Circus Road, for Central London Building Co.; buildings, Salisbury Street, for Mr. E. W. Banfield.

★

The OXFORD Corporation has approved the erection of a village hall at Headington Quarry, in accordance with a layout plan submitted by Mr. Rayson.

★

The MARYLEBONE B.C. has asked Messrs. A. W. S. and K. M. B. Cross, architects, to prepare the desired report upon new accommodation for baths and washhouses.

★

The GLOSSOP Corporation has decided to grant another twenty housing subsidies.

★

The HERNE BAY U.D.C. is in communication with the Herne Bay Estates, Ltd., respecting the development of the Burton Downs estate.

★

The HORNSEY Corporation proposes the acquisition of a site near Park Road for the construction of an open-air swimming bath and the use of the land not required for such purpose for recreative purposes.

★

The BRIGHTON Corporation is to discuss with the Guardians the question of the provision of accommodation for mental defectives.

★

The OXFORD Corporation Estates Committee has passed plans submitted by Mr. Warland for his new buildings in George Street, showing a lower building to be erected in Worcester Street.

★

The PENZANCE Corporation proposes to invite Mr. Henry Maddern, of Morrab, to co-operate with the borough engineer in the preparation of the layout plans for the housing scheme at the York House site.

★

The OXFORD Corporation has given permission for development to proceed in the case of Miss Knott's building estate between Pile Road and High Street, Cowley, provided the culs-de-sac shown on the layout plan are widened so as to admit the passage of carts, and provided also that a 15-ft. building line is observed throughout the estate.

A Ministry of Health inquiry is to be held into the Carlisle area improvement scheme, which is to be undertaken by the L.C.C. on behalf of the MARYLEBONE Borough Council at a cost of over one million.

★

The Dorset County Education Committee is to erect a school for 250 children at Ensbury Park, KINSON.

★

The L.C.C. Education Committee is to prepare plans for the extension of the school of cookery and waiting at WESTMINSTER.

★

The L.C.C. Education Committee has passed revised plans of the proposed new buildings of Regent Street Polytechnic on the site between Little Titchfield Street and Ridinghouse Street, MARYLEBONE.

★

The EASTBOURNE Corporation has approved plans of the Victoria Drive estate lodged by Messrs. Mark Hookham, Ltd.

★

Plans passed by the OXFORD Corporation: Warehouse, Broad Street, for Messrs. Alden; hall, Polstead Road, for Mr. F. E. Openshaw, on behalf of the Polstead Institute; alterations to premises, Worcester Place, for Messrs. R. J. Johnson; rebuilding, "The Gardeners' Arms" public-house, North Parade, for Messrs. Morrell's trustees; store, Park End Street, for Messrs. Hall's Brewery.

★

The Warwickshire Education Committee is to erect a central school in Kimberley Road, RUGBY.

★

The DARTFORD U.D.C. is seeking sanction for a loan for further housing advances.

★

The following plans have been submitted to the EASTBOURNE Corporation: Three blocks of flats and nine garages, Southfields Road, for Messrs. Hendry & Co. (architects), for United Women's Homes Association; covered tennis court, Tutts Barn Lane, for Messrs. P. D. Stonham and Son (architects); six houses, Compton Place Road and Vicarage Road, for Mr. G. Lovell (architect).

★

The Kent Education Committee is to extend the BECKENHAM County School for Girls.

★

The governors of the RUGBY Hospital of St. Cross are preparing a scheme for extensions.

★

Plans passed by the BEXHILL Corporation: Three shops, Cooden Sea Road, for Messrs. Tubbs and Messer; additions, "The Officer's House," Norman's Bay, for Mr. W. C. Nott; squash racket court, "Link Hill," Ellerslie Lane, for Mr. J. H. Lye; business premises, Devonshire Road, for Mr. J. E. Maynard, for Barclays Bank, Ltd.; four houses, "Rectory Field," off Hastings Road, for Mr. G. H. Gray.

The CITY OF LONDON Corporation has adopted a plan for effecting a widening in front of 70 and 74 Bishopsgate, and the porch of St. Ethelburga Church.

★

The BEXHILL Corporation has received sanction to the appropriation of the further area of land at Burnt House Farm upon which it is proposed to erect fifty additional houses.

★

Plans passed by the BOURNEMOUTH Corporation: Eighteen shops and flats, Holdenhurst Road and Victoria Place, for Messrs. Hayward and Abbott; alterations, "The Westover," Westover Road, for the Savoy Cinemas, Ltd.; two houses, St. Alban's Road, for Mr. S. G. Ward; parish hall, St. Clement's Gardens, for the trustees; alterations, 15-17 Victoria Park Road, for Messrs. W. and L. Haycraft; four houses, Wilson Road, for Messrs. H. Smith and Son; two houses, Windham Road, for Messrs. H. Smith and Son; club, Richmond Hill, for Mr. G. F. Chance.

★

Plans passed by the KENSINGTON B.C.: Building, Gregory Place, Holland Street; office building at petrol-filling station, Pennant Mews; building, 26-28 Church Street.

★

The SOUTH SHIELDS Corporation has approved a layout of thirty houses on land between King George Road and Mortimer Road.

★

Plans passed by the SOUTH SHIELDS Corporation: Two houses, Moore Avenue, Harton, for Mr. Howard Hill; bungalow, Armstrong Avenue, Harton, for Mr. John M. Dingle; rebuilding premises, Barrington Street, for Mr. Geo. R. Smith.

★

Plans passed by the PRESTWICH U.D.C.: Two houses, Bland Road, Hilton Park, for Messrs. Richardson and Son; lavatories to dance hall, New Cinema, Sedgley Park, for Mr. D. Tebbitt; houses, Highfield Road, for Messrs. J. and W. Leach and Sons, Ltd.; alterations, 373 Bury New Road, for Mr. J. Eastwood.

★

The Board of Education has empowered the Warwickshire Education Committee to proceed with the erection of a central school at KENILWORTH.

★

The CITY OF LONDON Corporation is to effect a widening in connection with the proposed rebuilding of 126, 127, and 128 Houndsditch.

★

The Board of Education has passed plans for the erection by the Warwickshire Education Committee of a girls' secondary school at SOLIHULL.

★

The CROYDON Corporation has passed plans for the development of land for the Spring Park Estates, Ltd.

RATES OF WAGES

			I s. d.	II s. d.
A	ABERDARE	S. Wales & M.	1 7½	1 2½
A	Abergavenny	S. Wales & M.	1 7	1 2½
B	Abingdon ..	S. Counties	1 5½	1 1½
A	Accrington	N.W. Counties	1 7½	1 2½
A	Addlestone	S. Counties	1 6	1 1½
A	Adlington ..	N.W. Counties	1 7½	1 2½
A	Airdrie ..	Scotland	*1 7½	1 2½
C_1	Aldeburgh	E. Counties	1 3	11½
A	Altrincham	N.W. Counties	1 7½	1 2½
B_1	Appleby ..	N.W. Counties	1 4	1 0
A	Ashton-under-Lyne	N.W. Counties	1 7½	1 2½
A_3	Atherstone	Mid. Counties	1 6	1 1½
B_2	Aylesbury ..	S. Counties	1 4	1 0
B_3	BANBURY	S. Counties	1 4	1 0
B_3	Bangor ..	N.W. Counties	1 4½	1 0½
A	BarnardCastle	N.E. Coast	1 7½	1 2½
A	Barnsley ..	Yorkshire	1 7½	1 2½
B_1	Barnstaple	S.W. Counties	1 5	1 0½
A	Barrow ..	N.W. Counties	1 7½	1 2½
A	Barry ..	S. Wales & M.	1 7½	1 2½
B_3	Basingstoke	S.W. Counties	1 4	1 0
B	Bath ..	S.W. Counties	1 5½	1 1½
A	Batley ..	Yorkshire	1 7½	1 2½
B	Bedford ..	E. Counties	1 5½	1 1½
A_3	Berwick-on-Tweed	N.E. Coast	1 6½	1 2
A_3	Bewdley ..	Mid. Counties	1 6½	1 2
B_3	Bicester ..	Mid. Counties	1 4	1 0
A	Birkenhead	N.W. Counties	*1 7½	1 2½
A	Birmingham	Mid. Counties	1 7½	1 2½
A	Bishop Auckland	N.E. Coast	1 7½	1 2½
A	Blackburn	N.W. Counties	1 7½	1 2½
A	Blackpool	N.W. Counties	1 7½	1 2½
A	Blyth ..	N.E. Coast	1 7½	1 2½
B_3	Bognor ..	S. Counties	1 4	1 0
A	Bolton ..	N.W. Counties	1 7½	1 2½
A_3	Boston ..	Mid. Counties	1 6	1 1½
B_1	Bournemouth	S. Counties	1 5	1 0½
B_3	Bovey Tracey	S.W. Counties	1 4½	1 0½
A	Bradford ..	Yorkshire	1 7½	1 2½
A_3	Brentwood	E. Counties	1 6½	1 2
A	Bridgend ..	S. Wales & M.	1 7½	1 2½
B_3	Bridgwater	S.W. Counties	1 4½	1 0½
A_1	Bridlington	Yorkshire	1 7	1 2½
A	Brighouse	Yorkshire	1 7½	1 2½
B_1	Brighton ..	S. Counties	1 5	1 0½
A	Bristol ..	S.W. Counties	1 7½	1 2½
B_3	Brixham ..	S.W. Counties	1 4	1 0
A_3	Bromsgrove	Mid. Counties	1 6½	1 2
C	Bromyard ..	Mid. Counties	1 3½	11½
A	Burnley ..	N.W. Counties	1 7½	1 2½
A	Burslem ..	Mid. Counties	1 7½	1 2½
A_3	Burton-on-Trent	Mid. Counties	1 6½	1 2
A	Bury ..	N.W. Counties	1 7½	1 2½
A_1	Buxton ..	N.W. Counties	1 7	1 2½
B	CAMBRIDGE	E. Counties	1 5½	1 1½
B_3	Canterbury	S. Counties	1 4	1 0
A	Cardiff ..	S. Wales & M.	1 7½	1 2½
A	Carlisle ..	N.W. Counties	1 7½	1 2½
B	Carmarthen	S. Wales & M.	1 5½	1 1½
B_3	Carnarvon	N.W. Counties	1 4½	1 0½
A_1	Carnforth ..	N.W. Counties	1 7	1 2½
A	Castleford	Yorkshire	1 7½	1 2½
B_1	Chatham ..	S. Counties	1 5	1 0½
B_1	Chelmsford	E. Counties	1 5	1 0½
A_3	Cheltenham	S.W. Counties	1 6	1 1½
A	Chester ..	N.W. Counties	1 7½	1 2½
A	Chesterfield	Mid. Counties	*1 7½	1 2½
B_3	Chichester	S. Counties	1 4	1 0
A	Chorley ..	N.W. Counties	1 7½	1 2½
B_3	Cirencester	S. Counties	1 4½	1 0½
A	Clitheroe ..	N.W. Counties	1 7½	1 2½
A	Clydebank	Scotland	1 7½	1 2½
A	Coalville ..	Mid. Counties	1 7½	1 2½
B_1	Colchester ..	E. Counties	1 5	1 0½
A	Colne ..	N.W. Counties	1 7½	1 2½
A_3	Colwyn Bay	N.W. Counties	1 6	1 1½
A	Consett ..	N.E. Coast	1 7½	1 2½
A_3	Conway ..	N.W. Counties	1 6	1 1½
A	Coventry ..	Mid. Counties	1 7½	1 2½
A_3	Crewe ..	N.W. Counties	1 6	1 1½
A_3	Cumberland	.....	1 6	1 1½
A	DARLINGTON	N.E. Coast	1 7½	1 2½
A	Darwen ..	N.W. Counties	1 7½	1 2½
B_3	Deal ..	S. Counties	1 4	1 0
A_3	Denbigh ..	N.W. Counties	1 6	1 1½
A	Derby ..	Mid. Counties	1 7½	1 2½
A	Dewsbury ..	Yorkshire	1 7½	1 2½
B	Didcot ..	S. Counties	1 5½	1 1½
A	Doncaster	Yorkshire	1 7½	1 2½
C_1	Dorchester	S.W. Counties	1 3	11½
A_3	Driffield ..	Yorks	1 6	1 1½
A_3	Droitwich ..	Mid. Counties	1 6	1 1½
A_1	Dudley ..	Mid. Counties	1 7	1 2½
A	Dundee ..	Scotland	1 7½	1 2½
A	Durham ..	N.E. Coast	1 7½	1 2½
B_1	EASTBOURNE	S. Counties	1 5	1 0½
A	Ebbw Vale	S. Wales & M.	1 7½	1 2½
A	Edinburgh	Scotland	1 7½	1 2½
A	E. Glamorganshire & Monmouthshire	S. Wales & M.	1 7½	1 2½
B	Exeter ..	S.W. Counties	*1 5½	1 1½
B_2	Exmouth ..	S.W. Counties	1 4½	1 0½
B	FELIXSTOWE	E. Counties	1 5½	1 1½
A_3	Filey ..	Yorks	1 6	1 1½
A	Fleetwood ..	N.W. Counties	1 7½	1 2½
B_3	Folkestone ..	S. Counties	1 4½	1 0½
A	Frodsham ..	N.W. Counties	1 7½	1 2½
B_3	Frome ..	S.W. Counties	1 4	1 0
A	GATESHEAD	N.E. Coast	1 7½	1 2½
B_1	Gillingham	S. Counties	1 5	1 0½
A_3	Gloucester	S.W. Counties	1 6	1 1½
A_2	Goole ..	Yorkshire	1 6½	1 2
B	Gosport ..	S. Counties	1 5½	1 1½
A_3	Grantham	Mid. Counties	1 6	1 1½
A_1	Gravesend	S. Counties	1 7	1 2½
A	Greenock ..	Scotland	*1 7½	1 2½
A	Grimsby ..	Yorkshire	1 7½	1 2½
B_1	Guildford ..	S. Counties	1 5	1 0½
A	HALIFAX ..	Yorkshire	1 7½	1 2½
A	Hanley ..	Mid. Counties	1 7½	1 2½
A	Harrogate	Yorkshire	1 7½	1 2½
A	Hartlepools	N.E. Coast	1 7½	1 2½
B_2	Harwich ..	E. Counties	1 4½	1 0½
B_3	Hastings ..	S. Counties	1 4	1 0
B_1	Hatfield ..	S. Counties	1 5	1 0½
B	Hereford ..	S. W. Counties	1 5½	1 1½
B	Hertford ..	E. Counties	1 5½	1 1½
A_1	Heysham ..	N.W. Counties	1 7	1 2½
A	Howden ..	N.E. Coast	1 7½	1 2½
A	Huddersfield	Yorkshire	1 7½	1 2½
A	Hull ..	Yorkshire	1 7½	1 2½

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 s. d.	II s. d.
A	ILKLEY ..	Yorkshire	1 7½	1 2½
A	Immingham	Mid. Counties	1 7½	1 2½
B	Ipswich ..	E. Counties	1 5½	1 1½
C_1	Isle of Wight	S. Counties	1 3	11½
A	JARROW ..	N.E. Coast	1 7½	1 2½
A	KEIGHLEY	Yorkshire	1 7½	1 2½
B_1	Kendal ..	N.W. Counties	1 5	1 0½
B_1	Keswick ..	N.W. Counties	1 5	1 0½
A_3	Kettering ..	Mid. Counties	1 6	1 1½
A_2	Kidderminster	Mid. Counties	1 6½	1 2
B_2	King's Lynn	E. Counties	1 4½	1 0½
A	LANCASTER	N.W. Counties	1 7½	1 2½
A_2	Leamington	Mid. Counties	1 6½	1 2
A	Leeds ..	Yorkshire	1 7½	1 2½
A	Leek ..	Mid. Counties	1 7½	1 2½
A	Leicester ..	Mid. Counties	1 7½	1 2½
A	Leigh ..	N.W. Counties	1 7½	1 2½
B_3	Lewes ..	S. Counties	1 4	1 0
A_3	Lichfield ..	Mid. Counties	1 6	1 1½
A	Lincoln ..	Mid. Counties	1 7½	1 2½
A	Liverpool ..	N.W. Counties	*1 10	1 4½
A_3	Llandudno	N.W. Counties	1 6	1 1½
A	Llanelly ..	S. Wales & M.	1 7½	1 2½
	London (12 miles radius)		1 9	1 4
	Do. (12-15 miles radius)		1 8½	1 3½
A	Long Eaton	Mid. Counties	1 7½	1 2½
A	Loughborough	Mid. Counties	1 7½	1 2½
B	Luton ..	E. Counties	1 5½	1 1½
A	Lytham ..	N.W. Counties	1 7½	1 2½
A_1	MACCLESFIELD	N.W. Counties	1 7	1 2½
B	Maidstone	S. Counties	1 5½	1 1½
A_3	Malvern ..	Mid. Counties	1 6	1 1½
A	Manchester	N.W. Counties	1 7½	1 2½
A	Mansfield ..	Mid. Counties	1 7½	1 2½
B_3	Margate ..	S. Counties	1 4	1 0
A_3	Matlock ..	Mid. Counties	1 6	1 1½
A	Merthyr ..	S. Wales & M.	1 7½	1 2½
A	Middlesbrough	N.E. Coast	1 7½	1 2½
A_3	Middlewich	N.W. Counties	1 6	1 1½
B_2	Minehead ..	S.W. Counties	1 4½	1 0½
A	Monmouth	S. Wales & M.	1 7½	1 2½
	S. and E. Glamorganshire			
A_1	Morecambe	N.W. Counties	1 7	1 2½
A_3	NANTWICH	N.W. Counties	1 6	1 1½
A	Neath ..	S. Wales & M.	1 7½	1 2½
A	Nelson ..	N.W. Counties	1 7½	1 2½
A	Newcastle ..	N.E. Coast	1 7½	1 2½
A	Newport ..	S. Wales & M.	1 7½	1 2½
A	Normanton	Yorkshire	1 7½	1 2½
A_1	Northampton	Mid. Counties	1 7	1 2½
A	North Staffs.	Mid. Counties	1 7½	1 2½
A	North Shields	N.E. Coast	1 7½	1 2½
A_3	Norwich ..	E. Counties	1 6	1 1½
A	Nottingham	Mid. Counties	1 7½	1 2½
A	Nuneaton ..	Mid. Counties	1 7½	1 2½
B	OAKHAM ..	Mid. Counties	1 5½	1 1½
A	Oldham ..	N.W. Counties	1 7½	1 2½
A_3	Oswestry ..	Mid. Counties	1 6	1 1½
B	Oxford ..	S. Counties	1 5½	1 1½
A	PAISLEY ..	Scotland	*1 7½	1 2½
C	Pembroke ..	S. Wales & M.	1 3½	11½
A	Perth ..	Scotland	*1 7½	1 2½
A_3	Peterborough	Mid. Counties	1 6	1 1½
A	Plymouth	S.W. Counties	*1 7½	1 2½
A	Pontefract	Yorkshire	1 7½	1 2½
A	Pontypridd	S. Wales & M.	1 7½	1 2½
B	Portsmouth	S. Counties	1 5½	1 1½
A	Preston ..	N.W. Counties	1 7½	1 2½
A	QUEENSFERRY	N.W. Counties	1 7½	1 2
B	READING ..	S. Counties	1 5½	1 1½
B	Reigate ..	S. Counties	1 5½	1 1½
A_3	Retford ..	Mid. Counties	1 6	1 1½
A	Rhondda Valley	S. Wales & M.	1 7½	1 2½
A_3	Ripon ..	Yorkshire	1 6	1 1½
A	Rochdale ..	N.W. Counties	1 7½	1 2½
B	Rochester	S. Counties	1 5½	1 1½
A_1	Ruabon ..	N.W. Counties	1 7	1 2½
A_2	Rugby ..	Mid. Counties	1 6½	1 2
A_3	Rugeley ..	Mid. Counties	1 6	1 1½
A	Runcorn ..	N.W. Counties	1 7½	1 2½
A_2	ST. ALBANS	E. Counties	1 6	1 1½
A	St. Helens	N.W. Counties	1 7½	1 2½
B_3	Salisbury	S.W. Counties	1 4	1 0
A_1	Scarborough	Yorkshire	1 7	1 2½
A	Scunthorpe	Mid. Counties	1 7½	1 2½
A	Sheffield ..	Yorkshire	1 7½	1 2½
A	Shipley ..	Yorkshire	1 7½	1 2½
A_3	Shrewsbury	Mid. Counties	1 6	1 1½
A_2	Skipton ..	Yorkshire	1 6½	1 2
B	Slough ..	S. Counties	1 5½	1 1½
A_2	Solihull ..	Mid. Counties	1 6½	1 2
A_3	South'pton	S. Counties	1 6	1 1½
B_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 7½	1 2½
A	S. Shields ..	N.E. Coast	1 7½	1 2½
A_2	Stafford ..	Mid. Counties	1 6½	1 2
A	Stockport ..	N.W. Counties	1 7½	1 2½
A	Stockton-on-Tees	N.E. Coast	1 7½	1 2½
A	Stoke-on-Trent	Mid. Counties	1 7½	1 2½
B	Stroud ..	S.W. Counties	1 5½	1 1½
A	Sunderland	N.E. Coast	1 7½	1 2½
A	Swadlincote	Mid. Counties	1 7½	1 2½
A	Swansea ..	S. Wales & M.	1 7½	1 2½
B	Swindon ..	S.W. Counties	1 5½	1 1½
A_1	TAMWORTH	N.W. Counties	1 7	1 2½
B_1	Taunton ..	S.W. Counties	1 5	1 0½
A	Teeside Dist.	N.E. Counties	1 7½	1 2½
B	Teignmouth	S.W. Coast	1 5½	1 1½
A	Todmorden	Yorkshire	1 7½	1 2½
A_2	Torquay ..	S.W. Counties	1 6½	1 2
C	Truro ..	S.W. Counties	1 3½	11½
B_1	Tunbridge Wells	S. Counties	1 5	1 0½
A	Tunstall ..	Mid. Counties	1 7½	1 2½
A	Tyne District	N.E. Coast	1 7½	1 2½
A	WAKEFIELD	Yorkshire	1 7½	1 2½
A_1	Walsall ..	Mid. Counties	1 7	1 2½
A	Warrington	N.W. Counties	1 7½	1 2½
A_3	Warwick ..	Mid. Counties	1 6½	1 2
A	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 7½	1 2½
B	Weston-s-Mare	S.W. Counties	1 5½	1 1½
A_3	Whitby ..	Yorkshire	1 6½	1 2
A	Widnes ..	N.W. Counties	1 7½	1 2½
A	Wigan ..	N.W. Counties	1 7½	1 2½
B_3	Winchester	S. Counties	1 4½	1 0½
B	Windsor ..	S. Counties	1 5½	1 1½
A	Wolverhampton	Mid. Counties	1 7½	1 2½
A_3	Worcester ..	Mid. Counties	1 6	1 1½
A_3	Worksop ..	Yorkshire	1 6	1 1½
A_1	Wrexham ..	N.W. Counties	1 7	1 2½
B	Wycombe ..	S. Counties	1 5½	1 1½
B_1	YARMOUTH	E. Counties	1 5	1 0½
B_3	Yeovil ..	S.W. Counties	1 4½	1 0½
A	York ..	Yorkshire	1 7½	1 2

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

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

PRICES CURRENT

EXCAVATOR AND CONCRETOR

EXCAVATOR, 1s. 4d. *per hour*; LABOURER, 1s. 4d. *per hour*; NAVVY 1s. 4d. *per hour*; TIMBERMAN, 1s. 5½d. *per hour*; SCAFFOLDER, 1s. 5d. *per hour*; WATCHMAN, 7s. 6d. *per shift.*

	£	s.	d.
Broken brick or stone, 2 in., per yd.	0	11	6
Thames ballast, per yd.	0	11	0
Pit gravel, per yd.	0	18	0
Pit sand, per yd.	0	14	6
Washed sand	0	15	0
Screened ballast or gravel, add 10 per cent. per yd.			
Clinker, breeze, etc., prices according to locality.			
Portland cement, per ton	£2	15	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	1	6
SPREAD and level, including wheeling, per yd.	0	1	6
FILLING into carts and carting away to a shoot or deposit, per yd. cube	0	10	6
TRIMMING earth to slopes, per yd. sup.	0	0	6
HACKING up old grano. or similar paving, per yd. sup.	0	1	3
PLANKING to excavations, per ft. sup.	0	0	5
DO. over 10 ft. deep, add for each 5 ft. in depth, 30 per cent.			
IF left in, add to above prices, per ft. cube	0	2	0
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
CEMENT concrete 4 2–1 in lintels packed around reinforcement, per ft. cube	0	3	9
FINE concrete benching to bottom of manholes, per ft. cube	0	2	6
FINISHING surface of concrete spade face, per yd. sup.	0	0	9

DRAINER

LABOURER, 1s. 4d. *per hour*; TIMBERMAN, 1s. 5½d. *per hour*; BRICKLAYER, 1s. 9d. *per hour*; PLUMBER, 1s. 9d. *per hour*; WATCHMAN, 7s. 6d. *per shift.*

	£	s.	d.
Stoneware pipes, tested quality, 4 in., per ft.	£0	0	10
DO. *6 in., per ft.*	0	1	3
DO. *9 in., per ft.*	0	2	3
Cast-iron pipes, coated, 9 ft. lengths, 4 in., per yd.	0	5	6
DO. *6 in., per yd.*	0	8	6
Portland cement and sand, see "Excavator" above.			
Leadwool per cwt.	£2	0	0
Gaskin, per lb.	0	0	4½

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	8	0
DO. 6 in., per ft.	0	10	0

Note.—These prices include digging concrete bed and filling for normal depths, and are average prices.

Fittings in Stoneware and Iron according to type. *See* Trade Lists.

BRICKLAYER

BRICKLAYER, 1s. 9d. *per hour*; LABOURER, 1s. 4d. *per hour*; SCAFFOLDER, 1s. 5d. *per hour.*

	£	s.	d.
London stocks, per M.	£4	15	0
Flettons, per M.	3	0	0
Staffordshire blue, per M.	9	10	0
Firebricks, 2½ in., per M.	11	3	0
Glazed sail, 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.			
DO. in backing to masonry, add 12½ per cent. per rod.			
DO. in raising on old walls, etc., add 12½ per cent. per rod.			
DO. in underpinning, add 20 per cent. per rod.			
HALF-BRICK walls in stocks in cement mortar (1–3), per ft. sup.	£0	1	0
BEDDING plates in cement mortar, per ft. run	0	0	3
BEDDING window or door frames, per ft. run	0	0	3
LEAVING chases 2½ in. deep for edges of concrete floors not exceeding 6 in. thick, per ft. run	0	0	2
CUTTING do. in old walls in cement, per ft. run	0	0	4
CUTTING, toothing and bonding new work to old (labour and materials), per ft. sup.	0	0	7
TERRA-COTTA flue pipes 9 in. diameter, jointed in fireclay, including all cuttings, per ft. run	0	3	6
DO. 14 ft. by 9 in. do., per ft. run	0	6	0
FLAUNCHING chimney pots, each	0	2	0
CUTTING and pinning ends of timbers, etc., in cement	0	1	0
FACINGS fair, per ft. sup. extra	0	0	3
DO. picked stocks, per ft. sup. extra	0	0	7
DO. red rubbers gauged and set in putty, per ft. sup. extra	0	4	9
DO. in salt white or ivory glazed, per ft. sup. extra	0	5	6
TUCK pointing, per ft. sup. extra	0	0	10
WEATHER pointing, do. do.	0	0	3
TILE creasing with cement fillet each side per ft. run	0	0	6
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
If coloured with red oxide, per yd. sup.	0	1	0
If finished with carborundum, per yd. sup.	0	0	6
If in small quantities in finishing to steps, etc., per ft. sup.	0	1	4
Jointing new grano, paving to old, per ft. run	0	0	4
Extra for dishing grano, or cement paving around gullies, each	0	1	6
BITUMINOUS DAMP COURSE, ex rolls, per ft. sup.	0	0	7
ASPHALT (MASTIC) DAMP COURSE, ½ in., 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, ½ 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
BREEZE fixing bricks, extra for each	0	0	3

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, 1s. 9d. *per hour*; DO. *fixer*, 1s. 10d. *per hour*; LABOURER, 1s. 4d. *per hour*; SCAFFOLDER, 1s. 5d. *per hour.*

	£	s.	d.
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. super	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
ARTIFICIAL stone paving, 2 in. thick, per ft. sup.	0	1	6
DO. 2½ in. thick, per ft. sup.	0	1	9

SLATER AND TILER

SLATER, 1s. 9d. *per hour*; TILER, 1s. 9d. *per hour*; SCAFFOLDER, 1s. 5d. *per hour*; LABOURER, 1s. 4d. *per hour.*

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

	£	s.	d.
Slates, 1st quality, per 1,200:			
Portmadoc Ladies	£14	0	0
Countess	27	0	0
Duchess	32	0	0

Old Delabole	*Med. Grey*	*Med. Green*
24 in. × 12 in.	£42 11 3	£45 1 0
20 in. × 10 in.	31 4 3	33 0 6
16 in. × 10 in.	20 18 0	22 4 9
14 in. × 8 in.	12 1 0	12 16 3

Green Randoms per ton	8	3	9
Grey-green do., per ton	7	3	9
Green peggies, 12 in. to 8 in. long, per ton	6	3	9
In 4-ton truck loads, delivered Nine Elms station.			
Clips, lead, per lb.	£0	0	6
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. lap, 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

SLATING with Old Delabole slates to a 3 in. lap with copper nails, at per square.

	Med. Grey	Med. Green
24 in. × 12 in.	£5 0 0	£5 2 0
20 in. × 10 in.	5 5 0	5 10 0
16 in. × 10 in.	4 15 0	5 1 0
14 in. × 8 in.	4 10 0	4 15 0
Green randoms	6 7 0	
Grey-green do.	5 9 0	
Green peggies, 12 in. to 8 in. long	4 17 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 18s. 0d. 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, 1s. 9d. *per hour*; JOINER, 1s. 9d. *per hour*; LABOURER, 1s. 4d. *per hour.*

	£	s.	d.
Timber, average prices at Docks, London Standard Scandinavian, etc. (equal to 2nds):			
7 × 3, per std.	£21	0	0
11 × 4, per std.	33	0	0
Memel or Equal. Slightly less than foregoing.			
Flooring, P.E., 1 in., per sq.	£1	2	6
DO. *T. and G., 1 in., per sq.*	1	2	6
Planed boards, 1 in. × 11 in., per std.	30	0	0
Wainscot oak, per ft. sup. of 1 in.	0	1	4
Mahogany, Honduras, per ft. sup. of 1 in.	0	1	3
DO. *Cuba, per ft. sup. of 1 in.*	0	2	3
DO., *African, per ft. sup.*	0	1	0
Teak, per ft. sup. of 1 in.	0	1	3
DO., *ft. cube*	0	12	6
FIR fixed in wall plates, lintels, sleepers, etc., per ft. cube	0	5	6
DO. framed in floors, roofs, etc., per ft. cube	0	6	6
DO. framed in trusses, etc., including ironwork, per ft. cube	0	7	6
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.	2	10	0
TURNING pieces to flat or segmental soffits, 4½ in. wide, per ft. run	0	0	4½
DO. 9 in. wide and over per ft. sup.	0	1	2

continued overleaf

CARPENTER AND JOINER: *continued.*

SHUTTERING to face of concrete, per square	£1	10	0
DO. in narrow widths to beams, etc., per ft. sup.	0	0	6
USE and waste of timbers, allow 25 per cent. of above prices.			
SLATE BATTENING, per sq.	£0	12	6
DEAL boarding to flats, 1 in. thick and firrings to falls, per square	2	10	0
STOUT feather-edged tilting fillet to eaves, per ft. run	0	0	6
FEATHER-edged springer to trimmer arches, per ft. run	0	0	4
STOUT herringbone strutting (joists measured in), per ft. run	0	0	6
SOUND boarding, ⅞ in. thick and fillets nailed to sides of joists (joists measured over), per square	2	0	0
RUBEROID or similar quality roofing, one-ply, per yd. sup.	0	2	3
DO., two-ply, per yd. sup.	0	2	6
DO., three-ply, per yd. sup.	0	3	0
TONGUED and grooved flooring, 1¼ in. thick, laid complete with splayed headings, per square	2	5	0
DEAL skirting torus, moulded 1¼ in. thick, including grounds and backings, per ft. sup.	0	1	0
TONGUED and mitred angles to do.	0	0	6
WOOD block flooring standard blocks laid herringbone in mastic :			
Deal 1 in. thick, per yd. sup.	0	10	0
DO. 1¼ in. thick, per yd. sup.	0	12	0
Maple 1¼ in. thick, per yd. sup.	0	15	0
DEAL moulded sashes, 1⅛ in. with moulded bars in small squares, per ft. sup.	0	2	6
DO. 2 in. do., per ft. sup.	0	2	9
DEAL cased frames, oak sills and 2 in. moulded sashes, brass-faced pulleys and iron weights, per ft. sup.	0	4	6
MOULDED horns, extra each	0	0	3
DOORS, 4-panel square both sides, 1⅛ in. thick, per ft. sup.	0	2	6
DO. moulded both sides per ft. sup.	0	2	9
DO. 2 in. thick, square both sides, per ft. sup.	0	2	9
DO. moulded both sides, per ft. sup.	0	3	0
DO. in 3 panels, moulded both sides, upper panel with diminished stiles with moulded bars for glass, per ft. sup.	0	3	6
If in oak, mahogany or teak, multiply 3 times.			
DEAL frames, 4 in. × 3 in., rebated and beaded, per ft. cube	£0	15	0
Add for extra labours, per ft. run	0	0	1
STAIRCASE work :			
DEAL treads 1⅛ in. and risers 1 in., tongued and grooved including fir carriages, per ft. sup.	0	2	6
DEAL wall strings, 1⅛ in. thick, moulded, per ft. run	0	2	6
If ramped, per ft. run	0	5	0
SHORT ramps, extra each	0	7	6
ENDS of treads and risers housed to strings, each	0	1	0
2 in. deal mopstick handrail fixed to brackets, per ft. run	0	1	6
4½ in. × 3 in. oak fully moulded handrail, per ft. run	0	5	6
1½ in. square deal bar balusters, framed in, per ft. run	0	0	6
FITTINGS :			
SHELVES and bearers, 1 in., cross-tongued, per ft. sup.	0	1	6
1½ in. beaded cupboard fronts, moulded and square, per ft. sup.	0	2	9
TEAK grooved draining boards, 1½ in. thick and bedding, per ft. sup.	0	4	6
IRONMONGERY :			
Fixing only (including providing screws) :			
To DEAL—			
Hinges to sashes, per pair	0	1	2
Do. to doors, per pair	0	1	7
Barrel bolts, 9 in., iron, each	0	1	0
Sash fasteners, each	0	1	0
Rim locks, each	0	1	9
Mortice locks, each	0	4	0

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	17	0	0
DO., *galvd., per ton*	19	0	0
Corrugated sheets, galvd., per ton	18	10	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

PLUMBER

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

*

Lead, milled sheet, per cwt.	£1	9	0
DO. *drawn pipes, per cwt.*	1	12	0
DO. *soil pipe, per cwt.*	1	0	0
DO. *scrap, per cwt.*	0	1	3
Copper, sheet, per lb.	0	1	3
Solder, plumber's, per lb.	0	1	3
DO. *fine, per lb.*	0	1	9
Cast-iron pipes, etc. :			
L.C.C. soil, 3 in., per yd.	0	4	0
DO. *4 in. per yd.*	0	4	9½
R.W.P., 2½ in., per yd.	0	2	2
DO. *3 in., per yd.*	0	2	7
DO. *4 in., per yd.*	0	3	6½
Gutter, 4 in. H.R., per yd.	0	1	6½
DO. *4 in. O.G., per yd.*	0	1	10½

*

MILLED LEAD and labour in gutters, flashings, etc. per cwt.	3	2	6
LEAD PIPE, fixed, including running joints, bends, and tacks, ½ in., per ft.	0	2	0
DO. ⅝ in., per ft.	0	2	3
DO. 1 in., per ft.	0	3	0
DO. 1½ in., per ft.	0	4	0
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
WIPED soldered joint, ½ in., each	0	2	6
DO. ⅝ in., each	0	3	2
DO. 1 in., each	0	3	8
BRASS screw-down stop cock and two soldered joints, ½ in., each	0	11	0
DO. ⅝ in., each	0	13	6
CAST-IRON rainwater pipe, jointed in red lead, 2½ in., per ft. run.	0	1	7
DO. 3 in., per ft. run	0	2	0
DO. 4 in., per ft. run	0	2	10
CAST-IRON H.R. GUTTER, fixed, with all clips, etc., 4 in., per ft.	0	2	0
DO. O.G., 4 in., per ft.	0	2	3
CAST-IRON SOIL PIPE, fixed with caulked joints and all ears, etc., 4 in., per ft.	0	4	6
DO. 3 in., per ft.	0	3	6
Fixing only :			
W.C. PANS and all joints, P. or S., and including joints to water waste preventers, each	2	5	0
BATHS, with all joints	1	3	6
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.* 4*d. per hour.*

*

Chalk lime, per ton	£2	17	0
Hair, per cwt.	2	0	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	5
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, ⅛ in., per yd.	0	2	4½
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	3
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.* 8*d. per hour.*

*

Glass : 4ths in crates :			
Clear, 21 oz.	£0	0	4½
DO. 26 oz.	0	0	5
Cathedral white, per ft.	0	0	7½
Polished plate, British ¼ in., up to 2 ft. sup. per ft.	0	1	2
DO. *4 ft. sup.* ,,	0	2	3
DO. *6 ft. sup.* ,,	0	2	6
DO. *20 ft. sup.* ,,	0	3	1
DO. *45 ft. sup.* ,,	0	3	3
DO. *65 ft. sup.* ,,	0	3	5
DO. *100 ft. sup.* ,,	0	3	10
Rough plate, ⅛ in., per ft.	0	0	6½
DO. *¼ in. per ft.*	0	0	6½
Linseed oil putty, per cwt.	0	15	0

*

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	0

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

PAINTER AND PAPERHANGER

PAINTER, 1*s.* 8*d. per hour ;* LABOURER, 1*s.* 4*d. per hour ;* FRENCH POLISHER, 1*s.* 9*d. per hour ;* PAPERHANGER, 1*s.* 8*d. per hour.*

*

Genuine white lead, per cwt.	£2	7	6
Linseed oil, raw, per gall.	0	3	6
DO., *boiled, per gall.*	0	3	8
Turpentine, per gall.	0	4	0
Liquid driers, per gall.	0	8	6
Knotting, per gall.	0	18	0
Distemper, washable, in ordinary colours, per cwt., and up	2	5	0
Double size, per firkin	0	3	6
Pumice stone, per lb.	0	0	4½
Single gold leaf (transferable), per book	0	2	0
Varnish, copal, per gall. and up	0	12	6
DO., *flat, per gall.*	1	2	0
DO., *paper, per gall.*	0	16	0
French polish, per gall.	0	17	6
Ready mixed paints, per gall. and up	0	15	0

*

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
WAX POLISHING, per ft. sup.	0	0	6
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, yd. sup.	0	1	2
DO., each subsequent coat, per yd. sup.	0	0	11

SUNDRIES

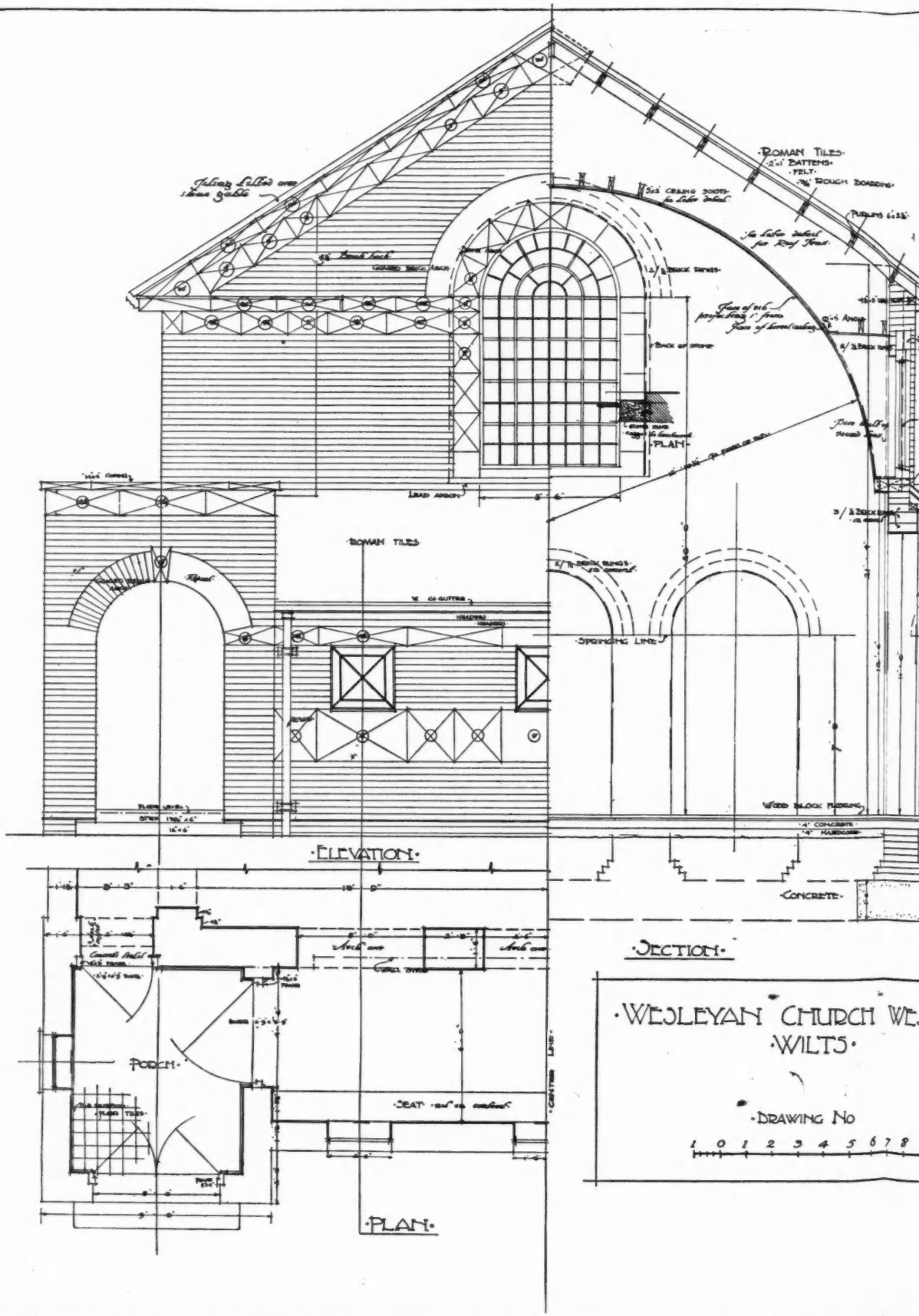
Fibre or wood pulp boardings, according to quality and quantity.
The measured work price is on the same basis . . . per ft. sup. £0 0 2½

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, 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, 5/32 in. punched per M. grey	16	0	0
DO., *red*	18	0	0
ASBESTOS COMPOSITION FLOORING : Laid in two coats, average ⅜ 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, per ft. sup.

Thickness	5/16 in.			½ in.			⅝ in.			¾ in.		
Qualities ..	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	9	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4	9½	7½	—	1 0½	10	—
Figured Oak 1 side	8½	7	—	10	8	—	11½	—	—	1 6	—	—
Plain Oak 1 side	6½	6	—	7½	7	—	9½	—	—	1 0	—	—
Oregon Pine	5	4	—	5½	5	—	6	—	—	—	—	—


ROMAN TILES
2"x1" BATTENS
FELT
¾" ROUGH BOARDING
PURLINS 6"x3½"
Joints Lilted over Main Gable
9" Brick Work
Back of Gutter
PLAN
LEAD APRON
ROMAN TILES
SPRINGING LINE
WOOD BLOCK FLOORING
4" CONCRETE
¼" MASTICOID
CONCRETE
ELEVATION
SECTION
PORCH
SEAT
CENTRE LINE
PLAN
WESLEYAN CHURCH WE
WILTS
DRAWING No
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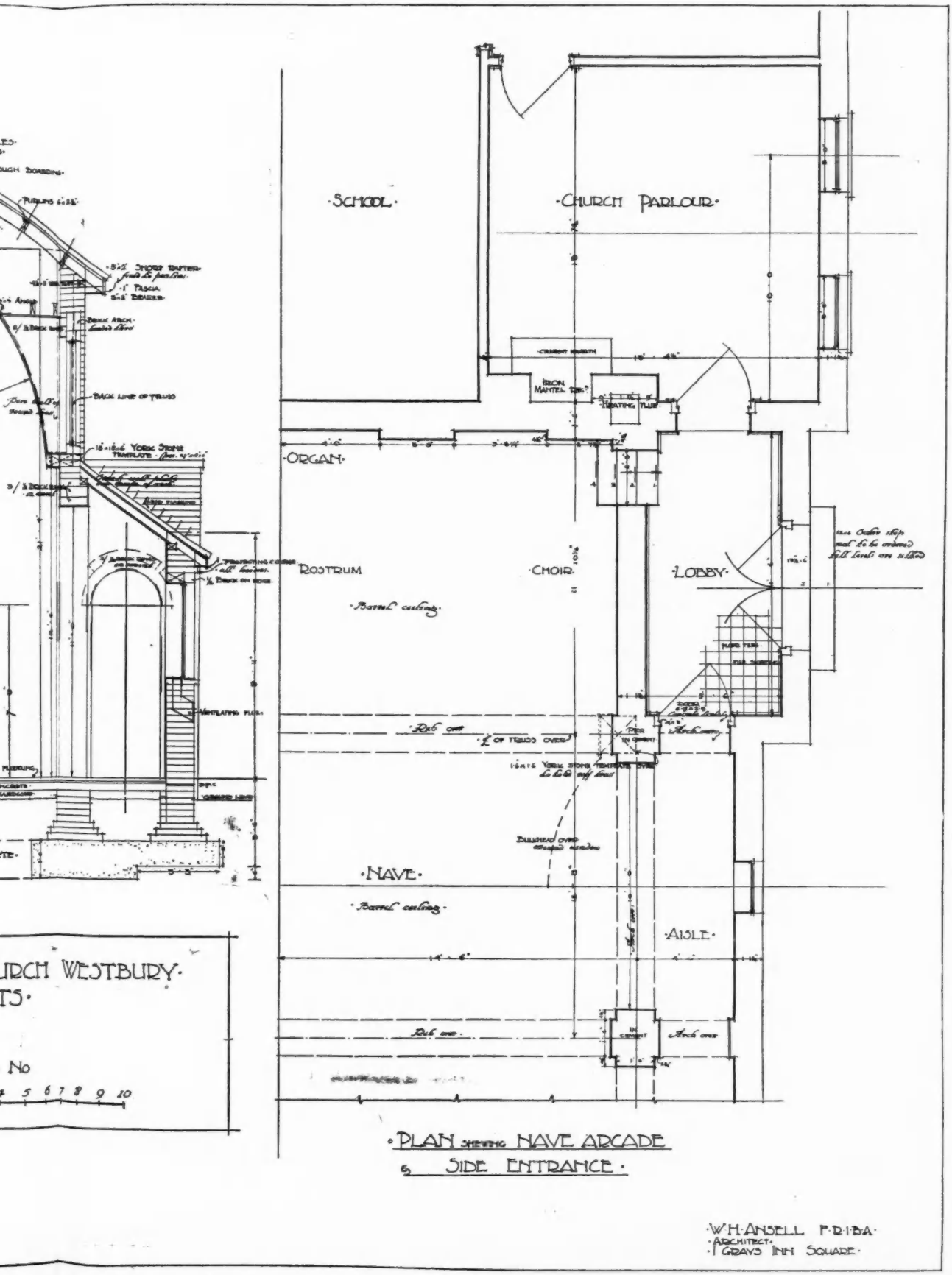

WESLEYAN CHURCH, WESTBURY, WILTSHIRE. BY W. H. ANSELL. DETAILS OF NAVE ARCADE AND SIDE ENTRANCE.