THE

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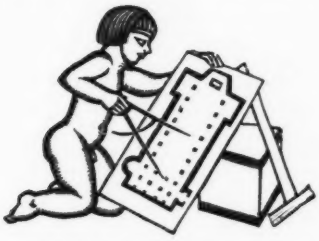

JOURNAL

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CHRISTIAN BARMAN, *Editor*

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

WEDNESDAY, SEPTEMBER 14, 1927. NUMBER 1704: VOLUME 66

PRINCIPAL CONTENTS

[A working detail of this main entrance appears on the following page]

THE MAIN ENTRANCE TO THE NORWEGIAN SEAMEN'S INSTITUTE AND CHURCH, ROTHERHITHE

[BY JOHN L. SEATON DAHL]

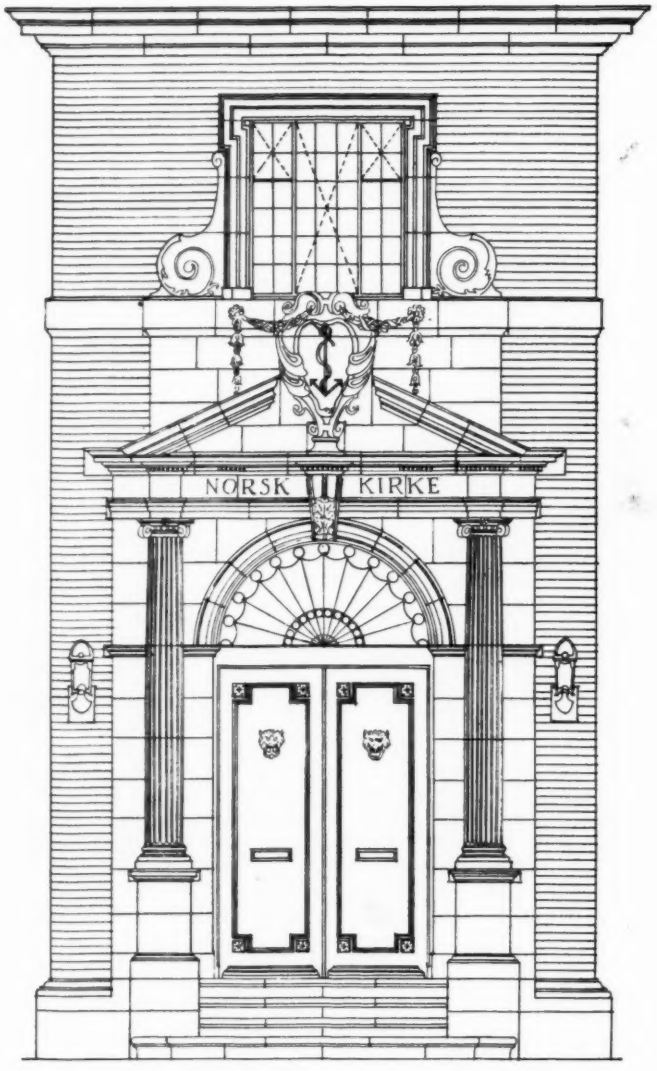
THE WEEK'S DETAIL

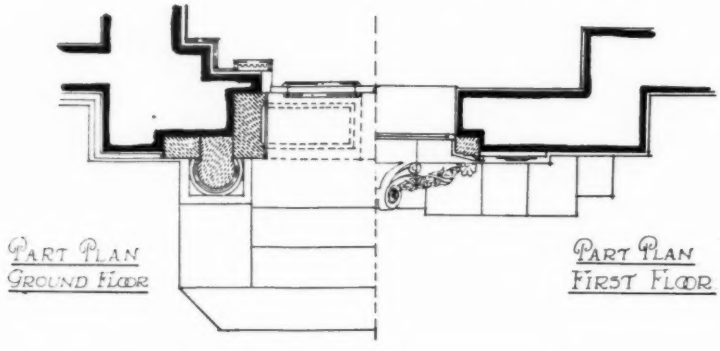
[BY JOHN L. SEATON DAHL]

This photograph shows the main entrance to the Norwegian Seamen's Institute and Church at Rotherhithe. It is carried out in Portland Whitbed, and the doors are of oak treated with lime. Round the shield is a serpent eating its own tail—a symbol of eternity—whilst in the carving of the Ionic capitals fir cones have been inserted, and the pateræ on the doors are carved in an entwined pattern in a style reminiscent of that found in the old Norse Stav-Kirke. The bronze lamps on either side were specially designed by the makers for their position, and suggest the prows of Viking boats.

NORWEGIAN SAILORS INSTITUTE

DETAIL OF FRONT ENTRANCE





PART PLAN
GROUND FLOOR

PART PLAN
FIRST FLOOR

Scale 1 0 1 2 3 4 5 6 7 feet

John L. Seaton, Dahl f.s.a.s.
Kildonan Chambers, Falkirk.

A photograph of this detail is given on the preceding page.

THE ARCHITECTS' JOURNAL

Wednesday, September 14, 1927

THE STANDARD BRICK

On page 364 we publish a letter which has been addressed to the R.I.B.A., suggesting that the "Standard Sizes of Bricks," published on pp. 604-6 of the *Kalendar*, should be reconsidered. Reference to the *Kalendar* must convince anyone that such revision is long overdue. The "Standards" set up were settled by the R.I.B.A. in consultation with the Brickmakers' Association and the Institution of Civil Engineers so long ago as 1904. Is there any standard set up twenty-three years ago that does not now require revision? The object of the consultation was to fix dimensions *only* of bricks, in order to obtain uniformity of size in the products of brickworks throughout the country. The amendment made in 1919 established a thicker standard brick for the six northern counties, but did not otherwise affect the "Standards" set up in 1904, to which, therefore, it also belongs. The conference does not appear to have had anything in mind beyond ensuring regularity in sizes of bricks, but it was impossible for them to define these without betraying something of their views as to what constituted good bricks and brickwork, not only from the point of view of strength, but also of visual effect. The illustrations printed with the "Standard Sizes" only put the text into diagrammatic form. Maximum and minimum sizes are given—the maximum brick thickness being only $\frac{1}{16}$ in. greater than the minimum. A similar margin is allowed also for variation in width, and proportionately for the length. Maximum and minimum lengths and widths of eight stretchers or headers laid side by side are defined with equal precision, actually allowing only $1\frac{1}{2}$ per cent. for variation.

It is clear that, to comply with these definitions, bricks must be made with exactitude; they must be quite rectangular, the arrises must be sharp, and the surfaces smooth. If they do not fulfil all these provisions they will not come up to the specification. Now, in 1904, such bricks were quite in accordance with the prevailing architectural taste; indeed, few architects would then have accepted anything less precise. The results in mechanical, unlovely brickwork may be seen up and down the land; for 1904 was nearly the end of what the French call, "L'époque du mauvais goût." Much water has run under the bridge since then, but pages 604-6 remain and are stated to apply to "all classes of walling bricks, both machine-made and hand-made."

The misuse of brick during the latter part of the nineteenth century by Waterhouse, Butterfield, and their successors naturally brought it into disrepute as a building material. That phase has passed; the qualities which good brick (of each kind) should possess are becoming recognized, as, also, its value and beauty as a building material. We now see brick used for churches, for city offices, factories, flats in Grosvenor Square, houses in suburbs, and in the country, all with the most charming results, but it is not done with brick made in accordance with the R.I.B.A. "Standard" of 1904. Still, there is the "Standard" in every year's *Kalendar*, though probably not one of the members of the R.I.B.A. committees would specify bricks complying with its provisions. True, they are not responsible for production of the "Standard," but they are for its annual publication and (now that attention is drawn to the survival) we doubt whether any one of them will wish to retain it.

The R.I.B.A. is the one arbiter in things architectural, and it aspires to greater influence and power. Here is an opportunity, not merely to amend its own annual publication, but to set up new and admirable standards for brick. Many, very many, of its Fellows, Associates, and Licentiates are perfectly satisfied with the 1904 "Standard" of size and quality of brick, in which they have been brought up, but the governing body of the Institute can now show a better way. We want to get away from bad standards of form, texture and colour—good ones *can* be defined. The same definition will not be suitable for every brick, but we have historical guides to classification which are so definite and present so little difficulty of application that we are sure a competent committee could settle the whole matter in a very short time. We fancy the existing "Standards" actually concern only the Science Standing Committee of the R.I.B.A., but standards for brick go far beyond its scope, and the Art Committee is certainly at least equally interested and might be strengthened by the co-opting of persons outside who have special knowledge of certain aspects of the question. The brickmakers should also be represented and the civil engineers can scarcely be ignored, though perhaps their interest is the least of all the parties concerned.

Is it too much to hope that the R.I.B.A. will follow the suggestions of our correspondent and be able approximately to define—or at least to indicate broadly—types of bricks and their joints? To do so would establish a right standard of brickbuilding throughout the architectural profession and would set all brickmakers to work to produce bricks to meet requirements and prices, the effects of which certainly would be far-reaching and satisfactory upon the architecture of our native land.

D

NEWS AND TOPICS

THE ORIENT IN 10 B.C.—BRICKS: TUDOR, GEORGIAN, AND STANDARD—A FIRST CLASS DEAL—HENRY JAMES AT RYE—MODERN SCULPTURE.

A FEW days ago, at the Académie des Inscriptions of France, interesting revelations were made regarding certain discoveries made in Mongolia. A Russian colonel some years ago found in an old tumulus to the north of Ourga a number of objects which proved that there was commercial exchange between the Eastern civilizations and those of the Mediterranean world. A scientific committee was then set up by the Mongolian Government, who have been trying to discover further objects which will throw light upon this unexpected revelation of the arts of bygone ages. At the Académie des Inscriptions M. Pelliet stated that a small cup made of shellac has now been found in the tumuli in the district. This is engraved with an inscription giving a date ten years before the Christian era. This cup therefore shows that nearly 2,000 years ago the Mongols and the races dwelling by the Mediterranean had means of barter and communication. I await further knowledge of the results of this contact with some excitement.

* * *

It has always been a puzzle to me that the official world should be so slow in taking notice of modern materials of all kinds, and more of a puzzle still that new fashions in old materials, such as bricks, should equally be ignored. Where are we to look for a standard specification for bricks to be used in wallage in the Tudor manner? I know not. And yet Tudor brickwork is very popular nowadays. It owes its charm to the irregularity, both of the unit and of the completed wall surface. The old brick was rough in form—often much warped—never sharp-arrised or precisely rectangular. Its texture was born of coarse sand, and plenty of it. Its colour varied with the earth from which it was made, but generally was red and ranging from light yellow-red to deep plum-red. Its form required a half-inch or even a three-quarter-inch joint to take up its irregularities. The wide joint produced a mesh-like effect, the bricks supplied variety of colour, and the whole world unites in admiring it. At the moment, facing bricks are being produced two to two-and-a-half inches thick, which more or less imitate the Tudor brick and are sold at relatively high prices as "multicolour bricks." Their colours and texture are good, but they are too near the R.I.B.A. "Standard," inasmuch as they are too square and too sharply arrised. They have their uses, and good walls are being built with them, but when bricks having all the real Tudor characteristics are wanted we have to get them from Holland, whose Klompje and similar bricks have the true Tudor lineaments.

* * *

By the beginning of the eighteenth century brickmaking had become more precise, and by the end of its second quarter the thickness of bricks had been fixed at 2½ in. The joint was from ¼ in. to ½ in. thick—four courses were specified to rise 11 in. or 12 in.—the arrises were sharp, and if they were not, then they were rubbed by the bricklayer slightly to sharpen them. Such walls were built in London, in every provincial town and throughout the country; at first in good red bricks, later (especially in London) in grey and yellow stocks, the dinginess of which ultimately brought brick into disfavour. Notwithstanding the taste for neatness, the eighteenth-century brick seldom reached the mechanical precision of the R.I.B.A. "Standard," and even that regularity to which it did attain was tempered by good colour and texture. There are still many uses for such bricks, but they should be definitely separated both in character and method of using from the Tudor type of brick.

* * *

The other day I came across the Report of the Commissioners of Crown Land, and when I had looked at it I was surprised not that there should be so many "upper parts" to let in Regent Street, but that there should be so few, for it is, indeed, difficult to understand how the vast sums now to be paid as ground rent for the new building leases can ever be recovered. Jays, Ltd., for instance, are now paying £6,570 on a seventy-one years' lease. The old valuation was £652 9s. The Café Royal, Ltd., for a lease of eighty years granted in 1923, pay peppercorn for the first year, £3,690 for the second, and £7,380 thereafter. The New Gallery Cinema has an eighty years' lease granted in 1924 for which it pays £3,700 for the first year, £11,165 for the second, and £16,130 thereafter. In addition to these vast rents it is to be remembered that these firms foot the bill for the rebuilding of the premises in connection with which a minimum sum is specified in the leases. Nash was always confident that his Regent Street would be a financial success, but that it should be *such* a success in comparatively so short a time he could scarcely have foreseen, any more than he could have foreseen how a commercially-minded community would despise his design. The Crown certainly did a wise thing when it metamorphosed a slum property, by clearing a way through St. James's Market, into the most elegant street in Europe.

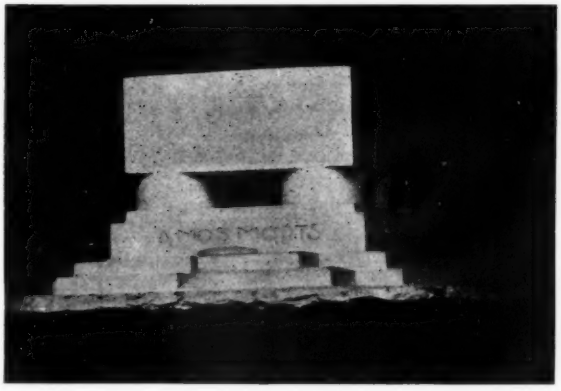
* * *

Pearson, and Bodley, and Peterborough! What a glorious constellation! Mr. Maurice B. Adams, retired F.R.I.B.A., certainly wins our gratitude for pleasantly recalling these noble names, so perennially charming to the eye and ear of all lovers of the Mistress Art and her "very worthy and approved good masters." How one envies Mr. Adams his happy fortune in having been one of the R.I.B.A. Council that once upon a time visited Peterborough to assist in the diagnosis of ailments that threatened it with swift dissolution. Its sands of time were, Mr. Adams bears witness, running out "like ground coffee"; and the proposal of grouting as a remedy would seem to have been rejected on sufficient grounds. Mr. Adams recalls his interesting personal observations at Peterborough in support of Sir John Simpson's admirably terse and practical little disquisition on the perishability of mortar, and the consequent tendency of old houses to give way at the joints, and thereby to collapse with the catastrophic finality of Humpty-Dumpty. Nowadays, I suppose, we understand much better than our rude forefathers the right proportions and ingredients of real stick-tight mortar, as well as the very best way to mix them; but, alas! both the mix and the mixer must still be watched narrowly and incessantly; and on some contractors of the baser sort this watching seems to impose too great a strain, inasmuch as the watchers also must be watched lest the lime be covertly stinted, and the sand be unclean and altogether unfit for the part it is to play in a compound that shall for a reasonable time defy the forces of disintegration. Then, again, as Mr. Adams

does not fail to remind us, the bonding of old work was, as at Peterborough, sometimes scamped by the old-timers. To the end that we may the more certainly bequeath sound work to posterity, the R.I.B.A. Science Committee, and other authentic building-materials researchers, must set to work with renewed energy and enthusiasm lest vibration bring us also under the "ground-coffee" condemnation that must surely perturb the spirits of the guileful old builders of Peterborough.

* * *

I was much impressed the other day by a model of an exceedingly simple cenotaph form of war memorial to be erected in one of the French military cemeteries in the old war zone. A plain rectangular stone table, supported by ten short and solid columns, evocative of the propping and sapping work in the mining galleries of the engineers attached to the tunnelling sections during the war, protects the figure of an only partially visible recumbent soldier,



the lines of which are to be suggested rather than conventionally sculptured. The top and sides of this great dolmech-like slab will be engraved with the names of the dead and missing of the particular sector of the old front line commemorated in this particular cemetery. The design is the work of Robert Giroud, Ancien Grand Prix de Rome.

* * *

One of the most interesting architectural and literary houses in England is Lamb House at Rye. For nearly twenty years it was occupied by Mr. Henry James, and now is in the possession of Mr. E. F. Benson. It stands at the top of a short, cobbled lane, with a view from the front window towards the famous church at Rye. Architecturally it is built in the Early Georgian style, with a capped doorway and a flight of steps leading up, on which, during the summer, artists take their stand. Two hundred years ago it was the house of the Mayor, Mr. James Lamb. Here he entertained in the year 1725 George I, who had been blown ashore while returning from Hanover on his way to Dover. It was some thirty years later (1755) the Duke of Cumberland, better known as the Butcher of Culloden, on a visit to inspect the defences of Rye, was also entertained by the Mayor.

* * *

Henry James discovered it in the year 1895 and wrote, in one of his letters that has been preserved, the following description:

After I had lost my heart to it—walking over from Point Hill to make sheep's eyes at it (the more so that it is called Lamb House !) —there was no appearance whatever that one could ever have it: either that its fond proprietor would give it up, or if he did it would come at all within my means. So I simply sighed and renounced, tried to think no more about it; till at last, out of the blue, a note from the good local ironmonger, to whom I had whispered at the time my hopeless passion, informed me that . . . it might perhaps drop into my lap. Well, to make a long story short, it did immediately drop and, more miraculous still to say, on terms, for a long lease, well within one's means—terms quite deliciously moderate. . . . There are two rooms of complete old oak—one of them a delightful little parlour, opening by one side into the little vista, church-ward, of the small old-world street where not one of the half-dozen wheeled vehicles of Rye ever passes; and on the other straight into the garden and the approach from that quarter, to the garden-house, aforesaid, which is simply the making of a most commodious and picturesque detached study and workroom.

Here, in the cobble-stoned, red-roofed town, Mr. Henry James lived for nearly twenty years.

* * *

It is good news that the further Duveen Galleries at the Tate are soon to be started. They will be particularly welcome as they are to house modern foreign sculpture, a branch of art of which we in England are lamentably ignorant. Rodin, Mestrovic and Carl Milles occupy the field of general knowledge. Bernard, Bourdelle and Maillol in France; Clara and Hernandez in Spain; Drei and Selva in Italy; Hanak and Ambrosi in Austria; Gaul and Behn in Germany, have all been demanding recognition here for years. There are also the Americans, Scandinavians and the Japanese all waiting to enlighten our insular ignorance. We do not even exhibit what is of import in our own sculpture. The British Museum and the Victoria and Albert vie with each other in securing contemporary prints, but make no such effort in the direction of sculpture—indeed, deprecate its acquisition. Why are Eric Gill, Alan Durst, Herbert Palliser, Richard Garbe, not to mention the good sculptors in the Academy, neglected for so long. And why is sculpture of an essentially architectural character always neglected? It is to be hoped that the new Duveen sculpture galleries will recognize not only architectural sculpture, but animal sculpture and other more or less applied forms, so consistently overlooked in England.

* * *

Two stonemasons are now at work on the preservation of Bodiam Castle in Sussex, which was left by Lord Curzon on his death in 1925 to the National Trust. Unfortunately, the plan of restoration that he had in mind was not carried out fully, for he had intended that the old drawbridge with eleven bays should be reconstructed. The beams of this bridge were found when the moat was emptied in 1919. They were then wattled in clay and left in their old position. I hope, however, that the local authority will take notice of the plants that are now growing on the walls. These indicate that the mortar must be loose, and should certainly be cleared away. But it is said in the district that certain members of the committee, who, by the by, refuse to allow the castle to be open on Sunday, still cling to the old-fashioned idea that plants on a building are picturesque. The interest taken by the public in this moated castle is best shown by the fact that this year there has been a record number of visitors. I was one of these and learnt locally that there is some doubt in the district as to the measures now being pursued for its future preservation.

ASTRAGAL

CABBAGES AND KINGS

[BY L. F. EDWARDS]

DIOCLETIAN, a Dalmatian peasant and a former slave in the household of a Roman patrician, rose within the short space of forty years to be the greatest of the emperors of declining Rome. Yet, throughout an active life of military adventure and court intrigue, culminating in twenty years of power as the acknowledged master of the greater part of the civilized world, he seems to have retained a sufficient love of his country to have planned an eventual retirement to it. The Palace of Diocletian at Spljet—or Spalato—is the vastest dwelling-place ever conceived for a single man, and one may infer from its size and the fact that it took ten years to build—from A.D. 295 to 305—that Diocletian had long planned his abdication, and had decided to pass the last years of his life in peace and retirement—a wish that he was not destined to enjoy.

Apart from the natural liking for his native land, it is not difficult to realize why Diocletian should have chosen this particular spot. "The soil was dry and fertile, the air is pure and wholesome, and, though extremely hot during the summer months, this country seldom feels those sultry and noxious winds to which the coast of Istria and some parts of Italy are exposed. The views from the palace are no less beautiful than the soil and climate were inviting. Towards the west lies the fertile shore that stretches along the Adriatic in which a number of small islands are scattered in such a manner as to give this part of the sea the appearance of a great lake. On the north side lies the bay, which led to the ancient city of Salona, and the country beyond it, appearing in sight, forms a proper contrast to that more extensive prospect of water which the Adriatic presents both to the south and to the east. Towards the north, the view is terminated by high and irregular mountains, situated at a proper distance and, in many places, covered with villages, woods, and vineyards."

Today this pleasing prospect is somewhat altered, yet sufficient remains to justify the choice of such a site. The depredations of Turks and Venetians seeking timber for their navies have bared the rocky limestone; the soil has been washed away, and the coast can no longer claim that immunity from sultry and noxious winds which Gibbon grants it. The palace itself and the city of Salona are no longer washed by the sea's edge, which has withdrawn in the one case to allow of a spacious riva, docks, and municipal trams, in the other to make room for a fertile mile of green fields. Yet the Salona countryside—"the Riviera of the Seven Castles"—is still the most fertile stretch of the Dalmatian coast, and the public park of Spljet, a well-wooded hill, which alone seems to have escaped the ravagers' hands, was once the hunting-ground of Diocletian himself, whose name has grown into a local legend and whose Slav name of Dukljan is common in children's tales for many miles around.

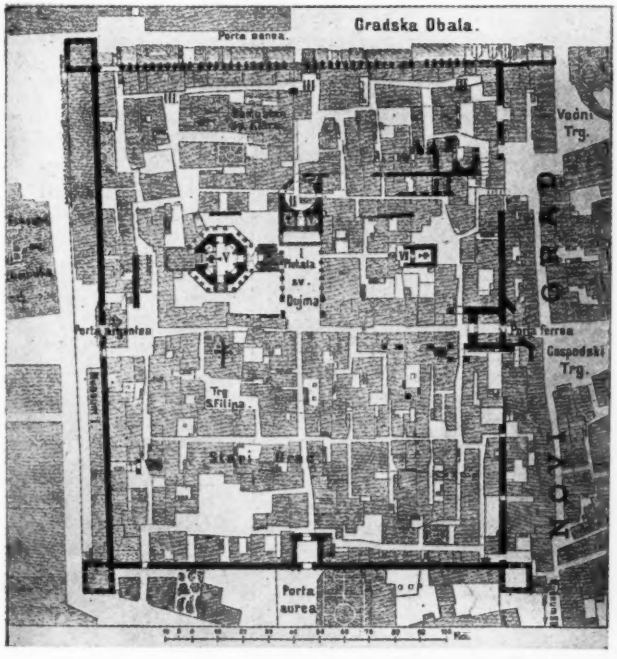
The cathedral and peristyle of Spljet. The columns and central dome form part of the Temple of Jupiter, afterwards the Imperial mausoleum. The columns are of various stones, many having been brought from Rome and Egypt. The tower was added last century, and, from the Roman point of view, is an anachronism. It is after the style of an old bell tower at Rab, and was put up by the English architect, Jackson.

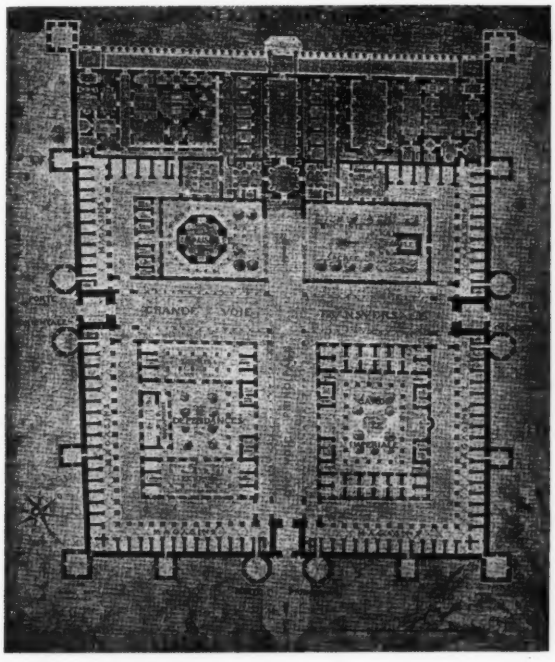
The palace was built in local limestone from the quarries of Trau and Brač, and this insistence on the local stone has caused the alterations and additions made during the Middle Ages to tone sensibly with the original structure, so that, approached from the sea, it still retains the semblance of a whole. Up till very recent years the walls of the palace, which enclose within their circumference from 10 to 12 acres, served as protection for the entire town of Spalato, and at the present day more than 265 houses and more than 3,000 persons find shelter within its walls.

The plan of the palace is that of the Roman castrum, four square with a gate piercing each side, and flanked by square towers. Of these gates the north, or Golden Gate — Porta

Aurea—is still in perfect preservation, although the local enthusiasts told me that this was due to a kindly accident, as the gate was covered with rubble during the Middle Ages and only excavated during the last century. Today, however, the temper is very different, and there is no danger whatever of any remaining part being damaged, even the café waiters being ardent archæologists and full of voluminous if inaccurate information about the palace.

Gibbon's description of the remaining parts of the palace is accurate enough today: " Four streets, intersecting each other at right angles, divided the several parts of this great





Above, a detail of the palace. Below, left, the plan of the palace as existing; right, the plan restored.

edifice, and the approach to the principal apartment was from a very stately entrance, which is still denominated the Golden Gate. The approach was terminated by a peristylium of granite columns, on one side of which we discover the square temple of Æsculapius, on the other the octagon temple of Jupiter. The latter of these deities Diocletian revered as the patron of his fortune, the former as the protector of his health. By comparing the present remains with the precepts of Vitruvius, the several parts of the building, the baths, the bedchamber, the atrium, the basilica, and the Cyzicene, Corinthian, and Egyptian halls have been described with some degree of precision, or at least of probability. Their forms were various, their proportions just, but they were all attended with two imperfections very repugnant to our modern notions of taste and convenience. These stately rooms had neither windows nor chimneys. They were lighted from the top (for the building seems to have consisted of no more than one story), and they received their heat by the help of pipes that were conveyed along the walls. The range of principal apartments was protected towards the south-west by a portico 517 ft. long, which must have formed a very noble and delightful walk, when the beauties of painting and sculpture were added to those of the prospect."

The plan shows what remains today. The Temple of Æsculapius is represented only by a row of columns and an architrave—incidentally, local scholarship doubts if Æsculapius was the patron—of the noble portico only a few columns remain, although the façade as a whole still exists, as the local houses have been built bodily into it.

The Temple of Jupiter has survived almost intact by a process of adaptation, having become the cathedral, and is now embellished, not over successfully, with a campanile spire, which sits a little self-consciously between the sphinxes brought by Diocletian from the tomb of Thotmes III of Egypt. This temple was probably intended as the mausoleum of the emperor who, however, does not lie there. In fact, after his abdication, little is known of Diocletian, and some very contrary rumours are quoted by Roman historians about his death.

The sixteen columns of the peristyle and the peripteros of the cathedral are still intact, as is also the underground passage which led in Diocletian's time to the sea portico. The vestibulum, however, through which it passes before passing under the outer ramparts has not fared so well. The walls are still intact, but the mosaic dome has crumbled away to about half its height, giving the appearance of an egg neatly cut off by a sharp knife. The rest of the personal apartments are either destroyed or incorporated into the mass of more recent dwelling-houses.

Constantine, not unnaturally, affects to despise Diocletian's palace, and it afterwards became part arsenal, part military clothing store for the Roman armies. It appears, however, several times more in the history of the province as the palace of local pretenders to the throne or a place of exile, and does not pass entirely out of history until its sack by the Avars round about A.D. 615. Since that time Dalmatia has passed from hand to hand so often as to be really a cockpit of the nations, but the palace has survived to be for us at once the remembrance of Rome's greatest emperor of the decadence and the supreme example of the architecture of his time.

The underground passageway leading from the peristyle of Diocletian's palace to the old water-gate. The façade was once on the sea-level, but the sea has receded now leaving room for a riva. Above is the vestibule, the last remaining part of the emperor's private apartments.

A NEW CHURCH FOR SAILORS

[BY I. M. CHECKLEY]

THE Norwegian Sailors' Institute and Church at Rotherhithe, recently opened by the Crown Prince, is peculiar in its composition and consequent character as being a building at once civic and ecclesiastical. The architect, Mr. John L. Seaton Dahl, F.R.I.B.A., has expressed these two functions with so nice a sense of balance that the result is an unexpectedly coherent whole. The plan is disposed so as rightly to make the church the climax of the scheme, with the assembly or reading-room set to form an annexe and an approach to it, both these principal units of the plan being arranged on its main axis, the church along and the reading-room across it, with a through vista from vestibule to apse. The two units are separated by a light triple arcade of Italian character, and by a cross lobby of tolerable width, bordered by two ranges of folding screens, which provide, when extended, an adequate barrier both to sound and view.

In plan the church is a rectangle of a length, from apsidal arch to gallery face, equal to the diagonal of a square on its width; it is divided into three equal bays defined only by the roof trusses placed centrally between windows, and is ended by an apse which is on plan a half-circle inside, and a half-hexagon out. Opposite this, and over the dividing lobby, is a stepped gallery, accessible both from the porch by a special staircase and from the upper floor of the institute by a corridor in its rear. In the centre of this gallery is the organ, which traditionally in Scandinavian churches is placed at the west end.

Externally the building is of solid appearance, constructed of brick, with quoins and dressings generally of stone, and a roof of Roman tiles pierced by stout brick chimneys. It is free-standing, with a gravelled surround, bordered by a light metal railing raised on a plinth, which railing abuts immediately opposite the entrance door on a simple memorial stone. At some distance on either side of this are the main gates, which are of more elaborate design. The front elevation is appropriately civic in feeling, having a square tower projecting slightly from the normal wall face, but tied to it by a heavy stone cornice and a string at first-floor sill level, which both encircle the institute, though not the church. The tower has, at the front, a high central window with a balcony and a flagstaff, set just below the cornice and blocking course of stone which, marked at the angles by four vases, form a base to the graceful flèche, this flèche itself terminating in a weather-vane bearing a small ship; the other three faces of the tower are pierced by round windows wreathed in swags. The entrance door and window over at the base of the tower are designed to read

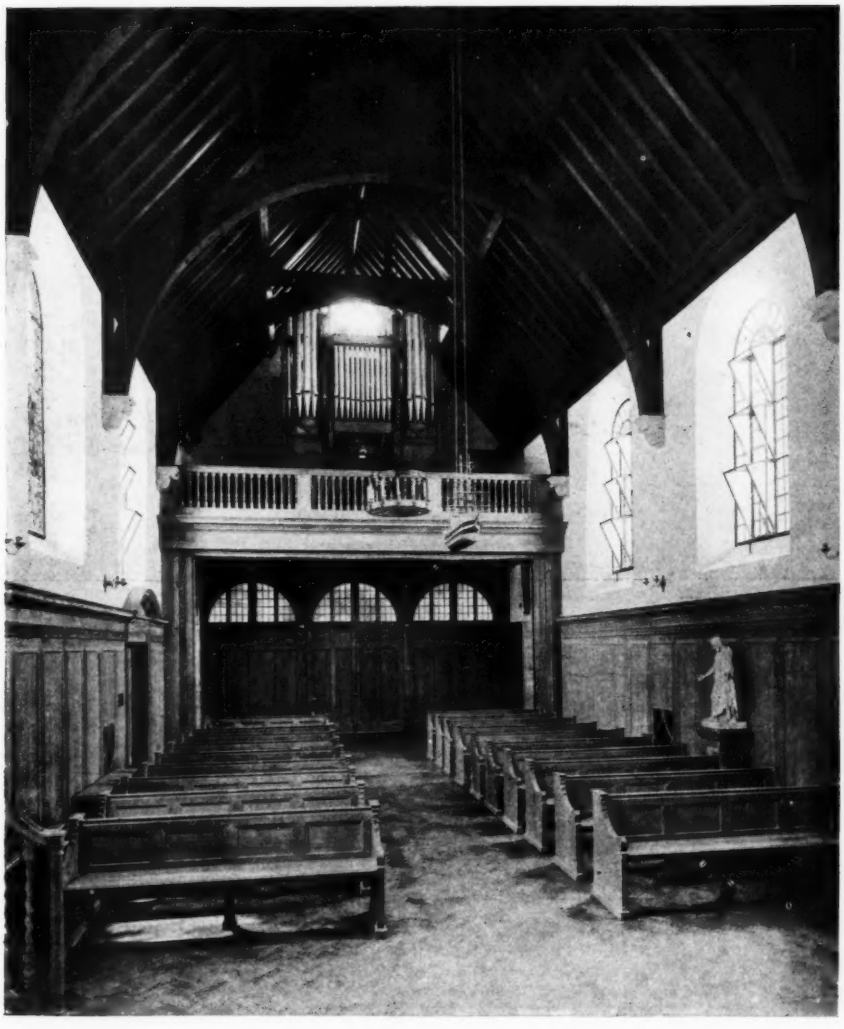
Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. The south front.

together as a vertical unit, and are embellished with exuberant pilasters, broken pediment, and cartouche, which provide a spot of richness valuable in the prevalent plainness.

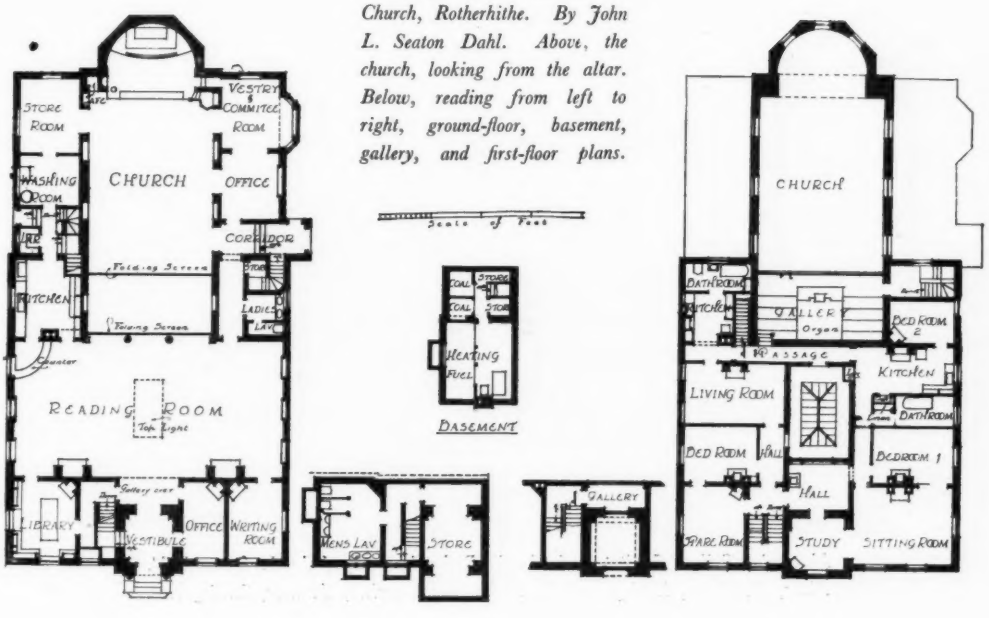
The side elevation contrives a fairly satisfactory junction of institute with church, and that without the retention on the latter of any of the main horizontal lines, except those of the plinth, the eaves and the ridge, the levels of window heads and of string being alike ignored. The character of the church is well indicated by its range of tall circular-headed windows and its typical apse, as well as by a certain austerity which the rest of the building does not possess, and which may be due to even blanker expanses of wall. The smaller windows, lighting offices and vestry, which appear below the tall ones, are valuable in maintaining a uniform scale between the two parts of the building, as are the similar architraves used throughout.

The treatment of the inside of the building is everywhere of a simplicity in accordance with that of the outside. The finish of the church is in plaster and wood, the walls being panelled for perhaps two-fifths of their height in vertical units bound at the top by a strong crowning entablature traditionally detailed. The plaster surface over, plainly washed, is unrelieved by ornament, and so affords the best possible field for the interest of the windows, some of which have stained and some plain glass, but all small-scale leaded panes. The roof is of open timber construction, with semicircular trusses, reproducing in line the curve of the apse and rising from conventional scroll corbels, fixed on a level with the springing of the windows. From it are slung geometrically-patterned candelabra, and at a lower level a single fully-rigged ship. The main floor is of parquet, that of the apse, which is raised on two steps, being in chequered black-and-white marble, supplying a note of strong contrast with the quiet tones in its vicinity. The rows of fixed pews are designed to read with the wall panelling, and are therefore similar to it in detail and in material. The pulpit with guilloche frieze and cherub heads, the font of Roman type, fluted and sheathed at its base with acanthus, and the altar rails are all likewise in wood, the last-named having delicate, spirally-twisted balusters. The church contains a single statue only, placed in the middle of its north wall below a window, where it is raised on a wooden pedestal. Other details of some interest are the carved notice-board, the unassuming reredos, and the priestly chair set in a niche behind the font. The radiator grilles have tracery which is bold in pattern. The entire west wall consists of an arcade which may be either open or screened, and the organ and choir gallery which projects over it, its deep fascia surmounted by a balustrade.

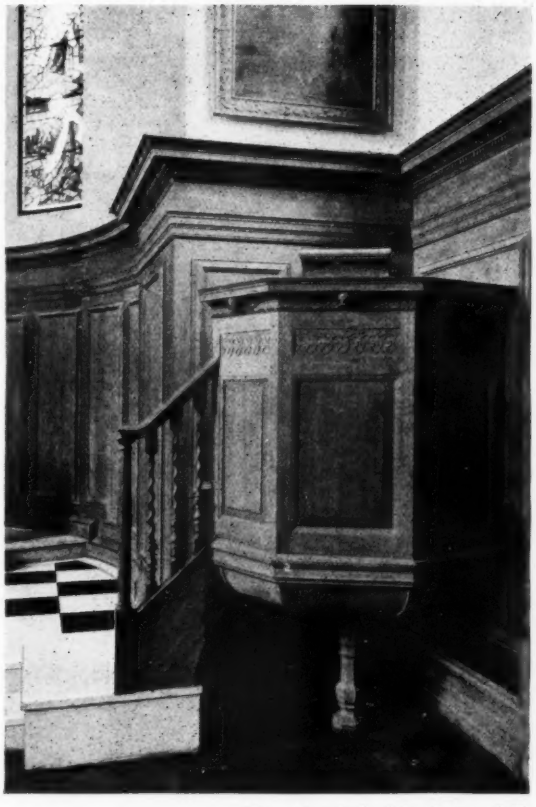
Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. Above, the main front. Below, the main entrance and war memorial.



Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. Above, the church, looking from the altar. Below, reading from left to right, ground-floor, basement, gallery, and first-floor plans.



Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. Above, the church, looking from the reading-room. Below, the nave, looking east.



Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. Above, the altar. Below, left, the pulpit, and, right, the font.

Norwegian Sailors' Institute and Church, Rotherhithe. By John L. Seaton Dahl. Above, the vestry and committee-room, looking from the office. Below, the reading-room.

THE NEW BUILDINGS AT RADLEY COLLEGE

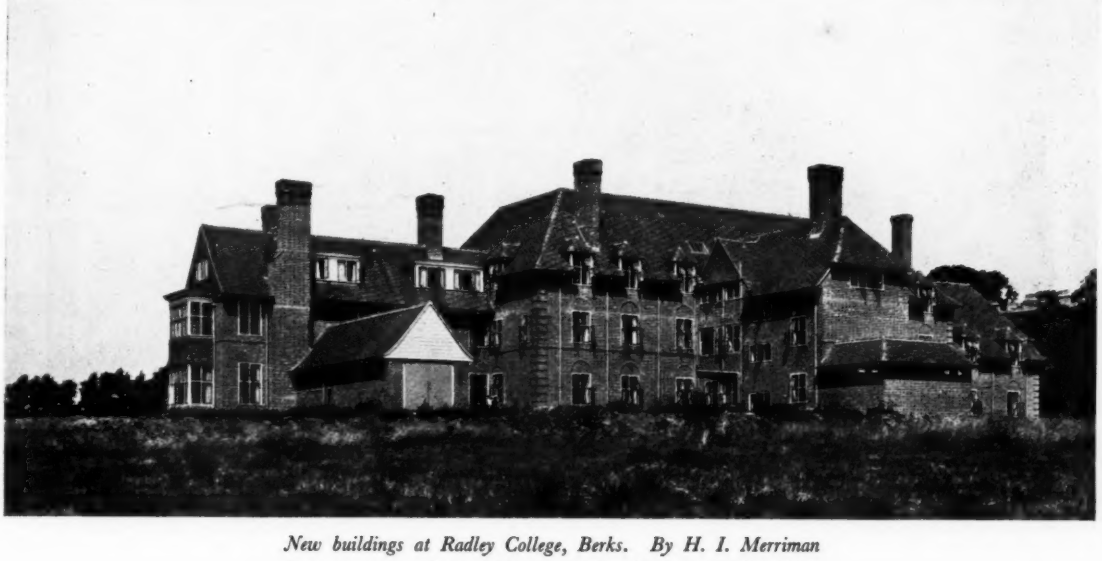
[BY LEONARD RICE-OXLEY]

RADLEY, like most public schools, has of late years increased in students, a fact which, with others, has resulted in the construction of new buildings. It is a fortunate thing that the recent growth of public schools has coincided with a growth of architectural taste and of a sense of hygienic planning. In the mid-nineteenth century, when so many schools were founded, it was scarcely realized that the buildings in which boys lived should be designed as carefully as the curriculum of their studies. It was too often thought that anything would do which provided shelter and had some appearance of being "public"; moreover, imitation Gothic windows and so forth were allowed to exclude light and air, and impart an atmosphere of gloom.

Radley was founded in 1847, and at first consisted only of Radley Hall, a Queen Anne house, which still exists and contains the warden's and masters' lodgings, library, etc. The first boarding-house was built in 1885. Ten years later the chapel was built by Sir T. G. Jackson, who designed, some fifteen years after, the dining-hall and other buildings, and, in 1922, a war memorial archway. Other architects of note who have contributed to the interesting collection of buildings at Radley are Mr. Temple Moore and Mr. W. Curtis Green, A.R.A.

The most recent additions consist of a boarding-house and a newly-equipped library, an assistant masters' private house, a shop and tea-room, and an engine-house. The architects associated in these works are Mr. H. I. Merriman and Mr. A. B. Knapp-Fisher, both old Radleians (the latter of the firm of Knapp-Fisher, Powell and Russell). The chief of these works is Mr. Nugee's house, providing accommodation for the master and some forty boys. The designers have evidently aimed at domesticity, and have eschewed pomp and publicity; they have constructed what might be a large private country house, and this domestic theme accords well with the object of the building and with its environment of garden, meadow, and trees. They have given artistic care to those details which, though unobtrusive to the inexpert eye, are of prime importance in design: for instance, a good roof line, with roof and dormers of steep pitch, a plinth which indicates that the structure is well set on the ground; quoins which strengthen and mark the proportions; solid well-designed stacks; wide eaves which make the roofing an integral part of the whole; and an arrangement, spacing, and proportion of window openings, which give great character to the whole. The material used (multi-coloured red facings and hand-made sand-faced tiles) gives great richness and variety of colour which time will increase and emphasize. Two pieces of decoration are noteworthy: the carefully-worked patterns in the slightly sunk tympana of the ground-floor windows, and the charmingly shaped columns of the loggia on the garden front. The planning of the house has been carefully adjusted to requirements; the masters' residence is kept separate but not inaccessible from the boys' portion by means, as it were, of buffer apartments, consisting of masters' study, matron's quarters, sick-rooms, recreation-room, etc. The whole building is so arranged that as much of it as possible has something of a southern aspect: partly because of this and partly because of excellent interior planning, the dormitories and passages are very light and airy.

The school library, known as the Wilson Library, as a memorial to the warden of that name, was recently moved from a smaller room to one which runs the whole length of the old Radley Hall, and was opened by H.R.H. the Prince of Wales in 1924. Here the work of Messrs. Merriman and Knapp-Fisher was to adapt the room and to design the



New buildings at Radley College, Berks. By H. I. Merriman and A. B. Knapp-Fisher. The house-masters' block.

bookcases, tables, and chairs. The bookcases, after the right manner of libraries, are set at right angles to the walls to allow of light falling on the tables between the cases. They are designed to harmonize with the old wainscoting of the room, and are decorated with end panels of simple but delicate moulding. Chairs, in popular estimation, are things too insignificant to be worthy of an architect's attention; but architects know this to be a grave fallacy, and in this case, though nothing elaborate is provided for everyday school use, there are chairs and tables which exhibit the taste of the craftsman and not that of the wholesale manufacturer, and it is doubted whether any school has now a more beautiful library than Radley.

The tea-room and shop are situated close to the war memorial archway, a site difficult to fill, since what might be put there must not appear to vie with the arch nor yet

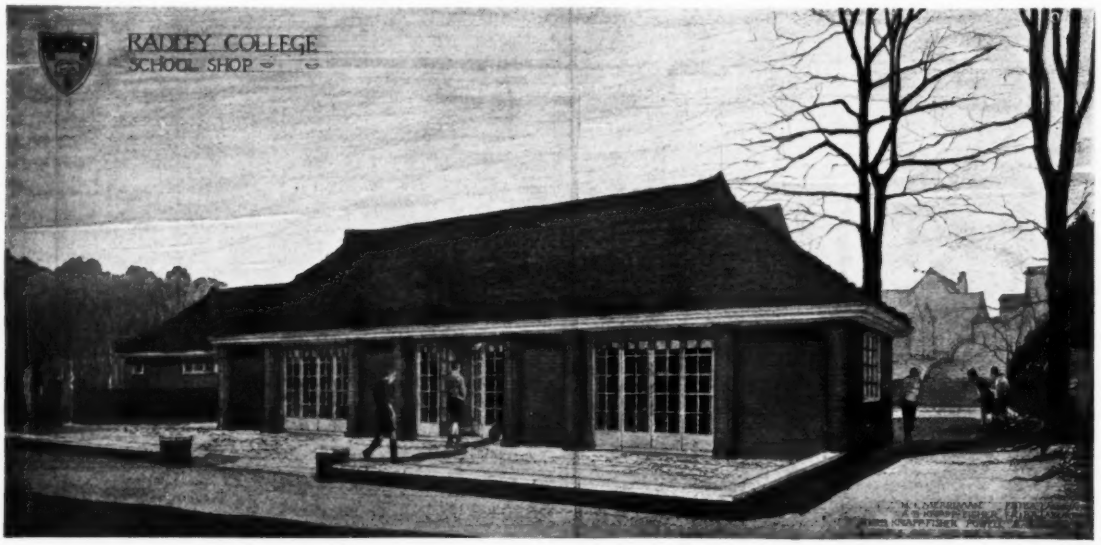
New buildings at Radley College, Berks. By H. I. Merriman and A. B. Knapp-Fisher. Two views of the house-masters' block.

New buildings at Radley College, Berks. By H. I. Merriman and A. B. Knapp-Fisher. Above, the boys' house. Below, the Wilson Library.

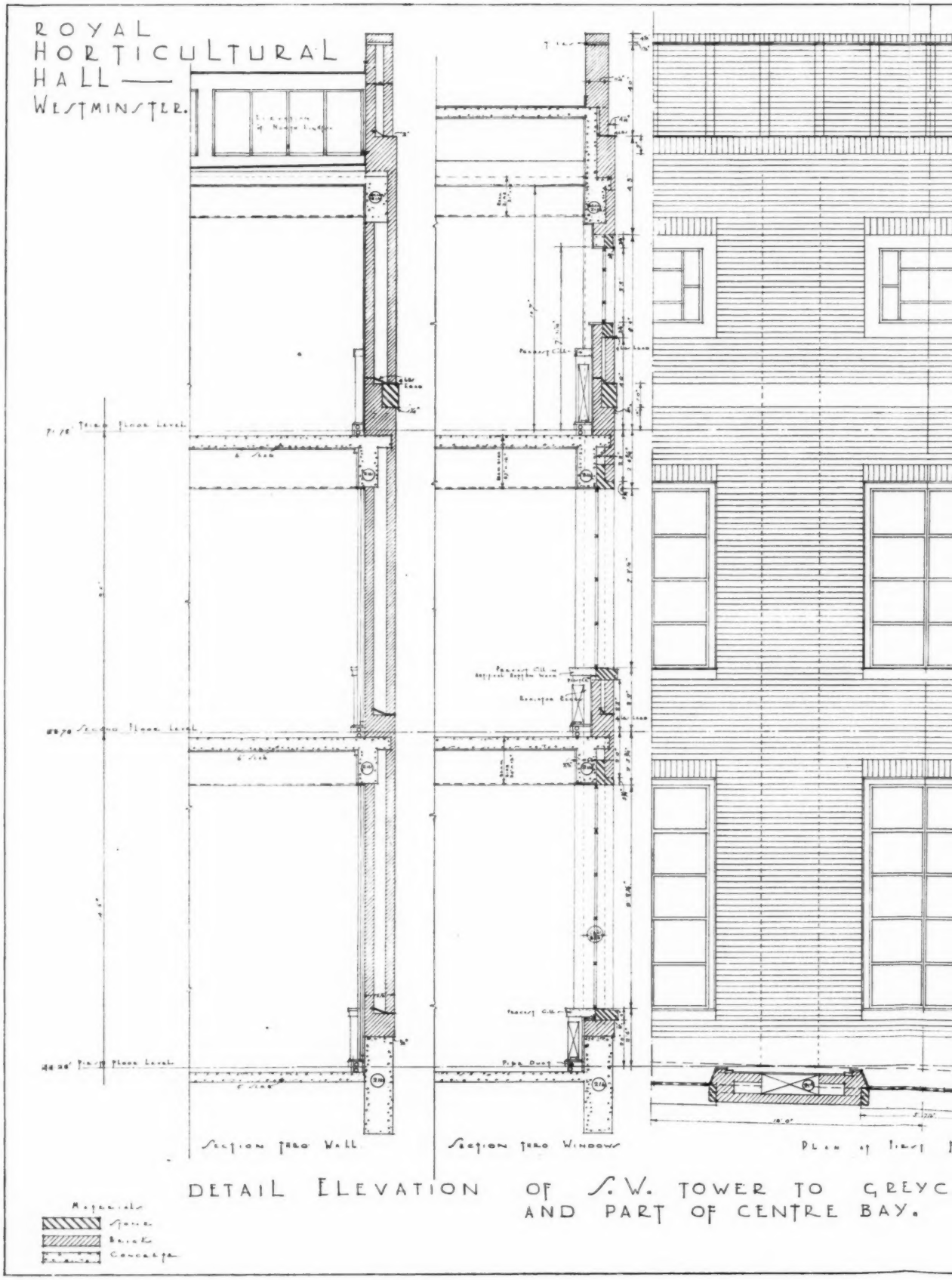
be too insignificant The architects have, we think, succeeded in combining humility with that amount of dignity which is as necessary to any building, whatever its purpose, as it is to any human being, whatever his function. The tea-room is a low pavilion, having glazed folding doors between splayed red brick piers with tiled caps and bases, and a paved forecourt. The doors are so arranged that the tea-room is cool in summer and in winter is convertible into a closed room. The shop forms the rear portion of the tea-room, and is constructed on a concentric system with the office in the centre, a system which gives a large amount of counter and makes the shelves and storing-place quickly accessible.

Messrs. Merriman and Knapp-Fisher are drawing plans for other additions to the school, to be erected to the north of the drive and the war memorial arch which spans it. These additions are to consist of a speech-room and concert hall and a music school and O.T.C. headquarters. The plans for the last-named are completed and approved, and the work has already been started.

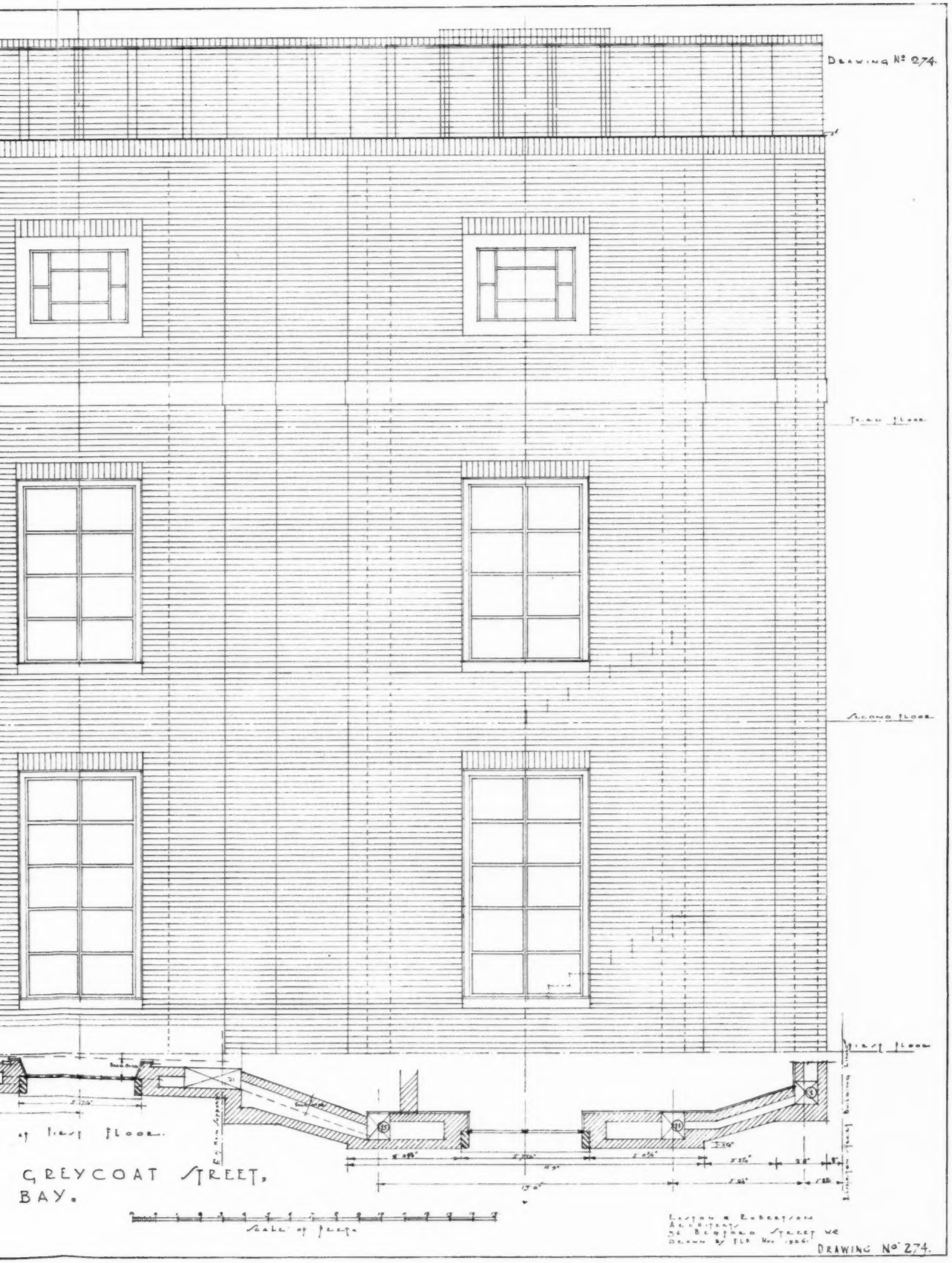
Radley School is situated on a wide plateau between Oxford and Abingdon. To north and south are meadows, to the west the park of old Radley Hall, to the east the hamlet of Radley. Its situation is therefore entirely rural, and its buildings do not have to compete in style and grandeur with any adjacent edifices. The original and centre building of the school is an old Queen Anne private house. The old hall, in use before T. G. Jackson constructed the new one, is an ancient barn, which, it may be mentioned, contains panelling from the old House of Lords. Having these considerations in mind, it seems fitting that modern additions to the school should in their main features be domestic and simple in design, and not aim at stateliness and splendour. The additions described above suit their surroundings admirably and meet the demands both of art and of utility.



New buildings at Radley College, Berks. By H. I. Merriman and A. B. Knapp-Fisher. Above, the assistant-masters' house. Below, the school shop.



DETAIL ELEVATION OF S.W. TOWER TO GREYC
AND PART OF CENTRE BAY.

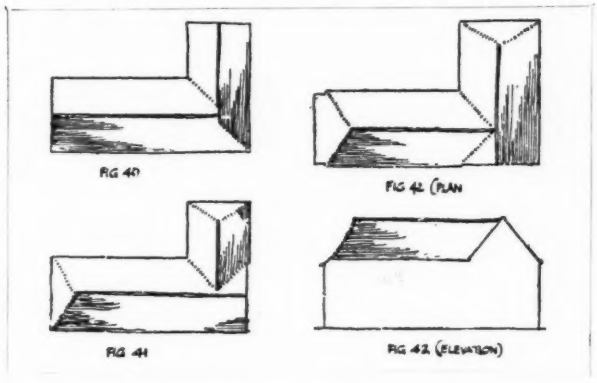


THE ROYAL HORTICULTURAL HALL, WESTMINSTER. BY EASTON AND ROBERTSON. DETAIL ELEVATION OF S.-W. TOWER TO GREYCOAT STREET, AND PART OF CENTRE BAY.

THE STUDY OF THE VERNACULAR: iii

[BY ARTHUR J. PENTY]

THE most interesting L-shaped roofs are those in which the hip and gable are combined. There are various ways of doing this. Sometimes a hip is placed at the angle with gables at the extremities, as in figure forty. At other times the gable is placed at the angle, while the hips are at the extremities, as in figures forty-one

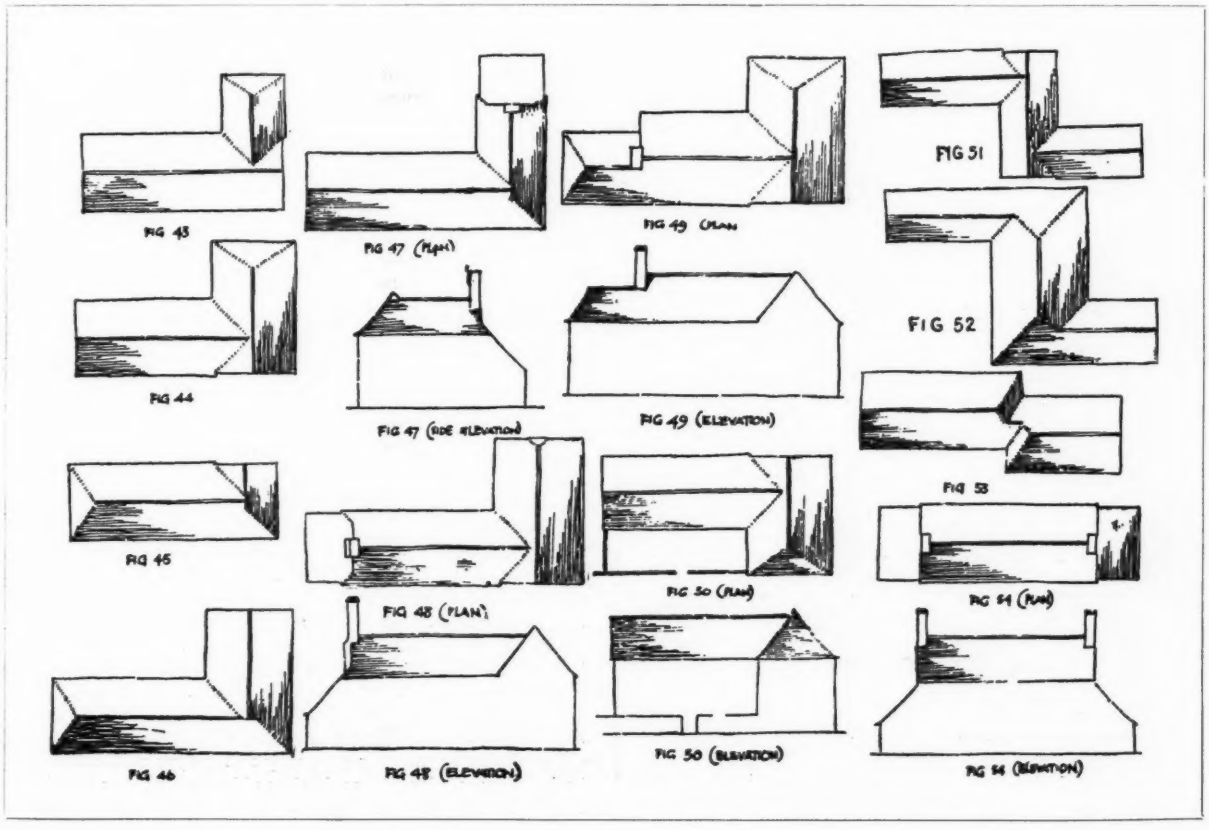


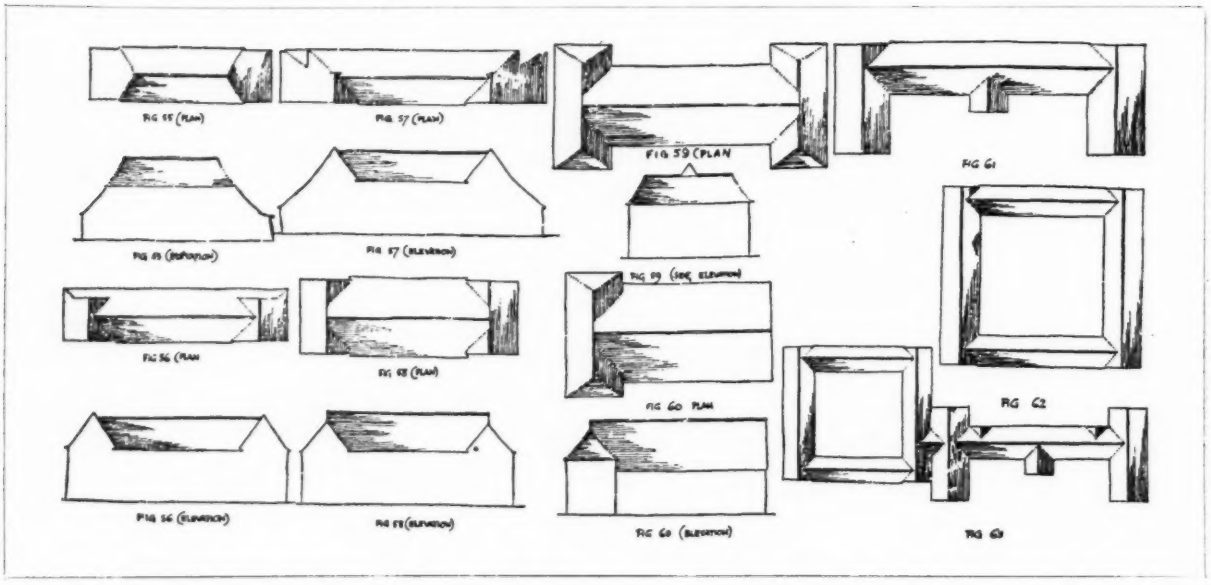
and forty-two; or one of the roofs may have a gable at each end, and the other be hipped, as in figures forty-three and forty-four; or the main roof may terminate with hips at either end with a gable at right angles, as in figures forty-five and forty-six.

Further modifications of these arrangements are suggested by figures forty-seven, forty-eight, and forty-nine. Figure forty-seven shows figure forty modified by making one roof span narrower than the other, with the addition of a "cat slide" at one end. Figure forty-eight shows a similar modification of figure forty-two; while figure forty-nine shows how figure forty-four could be amended by the incorporation of an idea from figure fourteen. I might go on multiplying such variations; and it is quite easy once the principle is understood that a gable at the angle involves some kind of hip treatment at one of the extremities, if not at both, and that a hip at the angle involves gable treatment of some kind at one of the extremities, if not at both. It always adds to the interest if the gables or hips are not exactly alike, though they may be nearly so; while, moreover, it is important for one roof to be subordinated to the other. Once these principles are grasped it is possible to keep on making variation after variation. The addition of a projecting porch to any of the plans with either a hipped end or a gable would alone quadruple the possibilities of most of them, while dormer windows add an additional variety. And here I would add that while a dormer with a pitched roof and hipped end is the prettiest of all treatments, it is not advisable to adopt such a treatment if there are many dormers on a roof, for it will be too crowded. In such cases flat roof dormers are to be preferred.

Figure fifty illustrates a very effective roofing of the L-shaped plan which is sometimes found at the juncture of roads. An interesting variation that can be used only in exceptional circumstances is the Z-shaped plan. Figures fifty-one, fifty-two, and fifty-three give different examples of this.

Then there is the symmetrical treatment of roofs. Figure fifty-four shows an ordinary pitched roof with gables and lean-tos at either end; figure fifty-five a hipped roof with the hipped ends carried down as "cat slides"; figure fifty-six, a pitched roof with





flanking gables; and figure fifty-seven shows the gables carried down as "cat slides." Attention should be drawn to the fact that the end elevations of figures fifty-six and fifty-seven are not symmetrical. The departure from strict symmetry destroys the mechanical effect they would otherwise have.

A very pleasing form of roof for buildings two rooms thick is the long roof of wide span flanked by gables of narrow span, as in figure fifty-eight. This is done in order to reduce the apparent scale of a very large roof. In such cases the connecting roof, where it rises above the flanking roofs, is finished with a gablet. It is never hipped, as generally happens today. The gablet makes a world of difference, and gives distinction to a roof which otherwise would be commonplace. The gablet is generally plastered and finished brown. Sometimes the flanking gables are brought forward and are gabled or hipped. Figure fifty-nine shows them when hipped. At times one of these flanking gables is omitted, and in the case of the main roof's being a very wide one, the eaves of the main roof are placed at a lower level than the eaves of the flanking gable, while the ridge is above as before. The idea in each case is to preserve the scale by making the flanking roof narrow. Figure sixty gives an example.

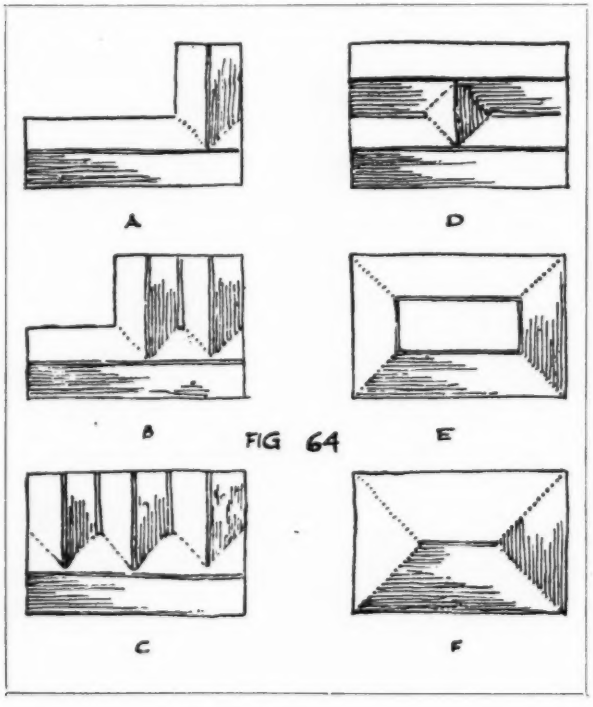


FIG 64

Now we come to the E-shaped plans which found such favour in Elizabethan times. Figure sixty-one shows the simplest example of such a one. There is no need for me to multiply examples of these as they are to be found in abundance in architectural literature.

Then we come to the quadrangle, the simplest form of which is given in figure sixty-two. Here again I do not propose to give further examples, as architectural literature is full of them, and, as architects are not so prone to go astray in large buildings as with small, it is unnecessary for me to do more than note them. Mention should be made of the combination of the E-shaped plan with the quadrangle, which has so often been used in large country houses of our day. Figure sixty-three gives an example.

Here and there the hipped gable is to be found on small houses; and when used occasionally just to take off the apex of a gable above the top purlin it may be used successfully. But generally speaking I am of opinion that it should be used only on roofs of large dimensions, and rarely ever for a roof of less than 25 ft. span. It is very effective on high buildings and on old barns, but it is necessary to be very cautious in using it. The home of hipped gables is South Germany. But the roofs there are very wide, a 60-ft. span being by no means uncommon. Modern ideas of hygiene do not permit us to use such large roofs for domestic purposes, owing to the difficulty of lighting the centre of such buildings. Something of the same kind is to be said about mansard roofs, which are not generally available in domestic work. They have been very effectively used in old flour mills and warehouses, while in a certain type of Georgian work they have been used successfully behind parapets. In each case, very wide spans are needed to make them effective. When used without parapets a building needs to be very high and of considerable dimensions to carry them off.

Let us pass on to consider the decline of roof planning. It is to be attributed to the influence of the reaction of the grand manner upon the vernacular architecture. Figure sixty-four illustrates the stage of decline. It shows how the long, narrow roof plan of the house one room thick, which was the basis of the old roof plans, gradually gave way to the type which forms the basis of the roof plan of the suburban villa of today. For even in this type of roof the tradition is continuous. The average architect,

tired of the monotony of the roof of the Italian villa period which approximates to a square on plan and is hipped on all sides, seeks for variety, not by returning to the fundamental and primary ideas of roof planning of the past, but by adding features culled from the architecture of an earlier date. The result is confusion. It produces a type of architecture that is born of boredom and ends in it, since the more the architect of today seeks to be different from his brother practitioner, the more he is like him. And so things will remain until the inward laws governing informal design are fully comprehended.

The great majority of old roofs in England will be found to approximate the types I have described, and the theory I have enunciated will account for 99 per cent. of old buildings. But dotted about the country there are to be found roofs, odd in shape, which elude classification, and which appear to owe their existence to the whim of their designers rather than to any tradition of roof planning; though doubtless the existence of such a tradition kept such eccentrics within range of sanity. It is to be regretted that in our day the idea of the picturesque has become too closely identified with such exceptional buildings, for it has obscured the existence of a great tradition of design that is as sane and rational as Greek architecture, though fortunately not so circumscribed and hidebound. It is with the hope of creating an interest in this tradition, which will well repay further investigation, for I have dealt with only some of its more fundamental qualities, that I have written. For just as any widespread revival of architecture involves the revival of its lower branches in ordinary building, so I am persuaded that the secret of design in all such building is to be found in a comprehension of the principles of roof planning. If we clearly understood these principles, we should begin to make rapid advance, for there would be something aroused which our thinking could crystallize. We should find it easy to do the exceptional things, if we understood more clearly how ordinary things should be done. The gulf between architecture and building would be gradually bridged, for the higher forms of architecture would become more flexible as they became organically related to the lower.

MEASURING, ESTIMATING, AND COSTING

[BY T. SUMNER SMITH]

I: MEASURING BASED UPON COSTING

MEASURING, estimating, and costing, in the order here given, is the customary method of procedure: that is, the first operation to be done is measuring, next estimating, and then costing. Considered as a practical proposition, this is the correct procedure; but as a scientific business proposition—No! From the latter point of view, costing is of the first importance. This does not mean that measuring and estimating are dependent solely upon costing, but that they should be subservient to it. However perfect in itself the method of measuring may be, estimating therefore, to be reliable, should be based upon some form of costing; upon the correct ascertainment of the cost of similar kind of work. Hence, we may say that we, in fact, work back from costing through estimating to measuring. Costing and measuring should therefore be correlated to enable estimating to function effectively.

Measuring should be done in a manner to facilitate costing, because costing is restricted in its method of application. For example, costing cannot deal with two variables, such as materials and labour, as if they were inseparable entities; but it can only deal with each of them separately. On the other hand, estimating by aid of analysis, though not very reliable, can, in a measure, accommodate itself to a method of measurement that combines two variables in one entity; but, in doing so, it is unable to link up effectively with costing. If, however, the method of measuring was based upon a sound workable method of costing, estimating would automatically be co-ordinated. To go farther. The thing that really matters and upon which everything revolves, is the ascertainment of the actual cost, which determines whether or not the work has been profitable, and whether the measuring and estimating were correct. Measuring and estimating should conform to costing to obtain a satisfactory result—for the builder, the architect, and the building owner. Our aim should be to obtain a satisfactory result, and this should be borne in mind in considering measuring, estimating, and costing. We hope to make this clear by a concrete example. We shall take slating as an example, not only because we can bring the whole of the trade—slater—under review in small compass, but also because the problems involved in that trade are in general the problems of other trades; and it expounds the principle.

The method of measuring with which we shall deal is that of the Standard Method of Measurement of Building Works. But it is not necessary for our purpose to treat the subject in the order given. We shall first deal with estimating based upon the standard method of measurement. The principle of measuring slating is that slating and battening shall be given in squares and feet or in yards superficial, and shall represent the net area covered after deducing all openings exceeding 4 superficial feet; the descriptions in all cases shall state the kind and sizes of slates, length of lap, method of fixing, and the kind and number of nails to each slate, and if torched or bedded; and the size and descriptions of battens shall be given. Slating and battening to mansard roofs, circular slating, and slating to conical, octagonal or other turrets are similarly measured and kept separate, and the kind described. The "cuttings," etc., are measured separately, and given as "extra" to eaves, verges, top edges of slating, square abutments, skew abutments and circular cutting, valleys, hips and angles. Ridge and hip coverings are measured, and given as separate items, as also are hip irons, and fixing soakers.

Assuming we have the measurement of the net area, before pricing we shall require certain data upon which to base our estimate, apart from the particulars given in the item itself, which may be, say: (*a*) size and quality of slates, 20×10 in.; (*b*) 3 in. lap; (*c*) nailed in centre, two nails to each; (*d*) 2×1 in. battens. We shall require: (*a*) the number of slates per square; (*b*) the weight of the slates; (*c*) the weight of the slate nails; (*d*) feet run of battens; (*e*) weight of batten nails; (*f*) the time taken by the slater and the labourer in preparing and laying the slates and fixing the battens; (*g*) the rate of wages of the slater and the labourer; and (*h*) the gross profit. We can obtain (*a*), (*b*), (*c*), (*d*), and (*e*) by calculations, which are not difficult, or they may be obtained from tables given in the various works on estimating. But for (*f*) we are solely dependent upon our judgment of the time that we think would be likely to be occupied by the slater and the labourer in carrying out the work. This judgment may be based upon experience, otherwise it may be nothing more than a guess, or it may be based upon data derived from the execution of similar work. Another way is to accept the data of others, or to obtain it from various "price" books and works on estimating. As regards (*g*), these should, of course, be the current rate of wages ruling in the district. As for (*h*), this should be obtained from ascertained facts.

We will now begin with our analysis. First, the ascertainment of the number of slates required per square. To do this, we shall have to ascertain the "gauge," thus: For Countess slates, 20 in. long by 10 in. wide, centre nailed, and with a 3 in. lap, we have:

$$\frac{\text{length of slate} - \text{lap}}{2} = \frac{20 \text{ in.} - 3 \text{ in.}}{2} = \frac{17}{2} = 8\tfrac{1}{2} \text{ in.}$$

And the area (one square) in inches, divided by the width of slates in inches and multiplied by the gauge in inches will give the number of slates, thus:

(100 ft.× 144 sq. in.= 14,400 sq. in. per square)

$$\frac{14{,}400 \text{ sq. in. per square}}{10 \text{ in. (width of slates)} \times 8\tfrac{1}{2} \text{ in. (gauge)}} = \frac{14{,}400}{85} = 170 \text{ slates.}$$

Allowing, say, 5 per cent. for waste, this will give approximately 179 slates, say 180 slates to the square.

The weight of the slates should be obtained from the merchant or quarry owner or from published lists; the weight may be taken as approximately 5 cwt. per square, for Countess slates of first

quality. For the weight of the slate nails, feet lineal of battens, the weight of the batten nails, and the labour per square, the data is that of the writer :

Weight of slate nails: 2·6 lb. per square of 1½ in. composition nails.

Feet lineal of battens: 165 ft. run per square.

Weight of batten nails: ·37 lb. per square.

Labour: Three hours for slater and labourer preparing and laying and fixing battens per square.

Wages: The current rate of wages ruling in the district.

Gross profits: From ascertained facts.

It only need be noted that slates are now sold at a price per thousand. The basic price per thousand slates delivered on site will be, thus:

PRICE OF SLATES PER THOUSAND, DELIVERED ON SITE

	£	s.	d.
Cost of 1,000 slates at works			
Loading trucks, 1,000 slates = 1½ tons @ per ton ..			
Carriage on 1½ tons @ per ton			
Unloading trucks, and carriage to site @ per ton ..			
Price delivered to site per 1,000	£		

If the price quoted by the manufacturer or merchant is for delivery to nearest railway station, then the cost only of unloading trucks and carriage to site should be added to the cost of slates.

Having obtained the basic price, we may now proceed to obtain the price per square laid, thus:

PRICE PER SQUARE LAID

	£	s.	d.
180 Countess slates, laid to a 3 in. lap, ·18 @ £ per 1,000 delivered			
2·6 lb. of 1½ in. composition nails @ per lb.			
165 ft. lineal of slate battens @ per ft.			
·37 lb. of batten nails @ per lb.			
Labour: preparing and laying slates and fixing battens, slater and labourer 3 hrs. @ per hour			
Add gross profit			
Price per square	£		

One-hundredth part of this will give the price per foot superficial, and nine times the price per foot superficial will give the price per yard superficial. In this article pricing has been omitted, as it is the method only with which we are concerned.

[To be continued]

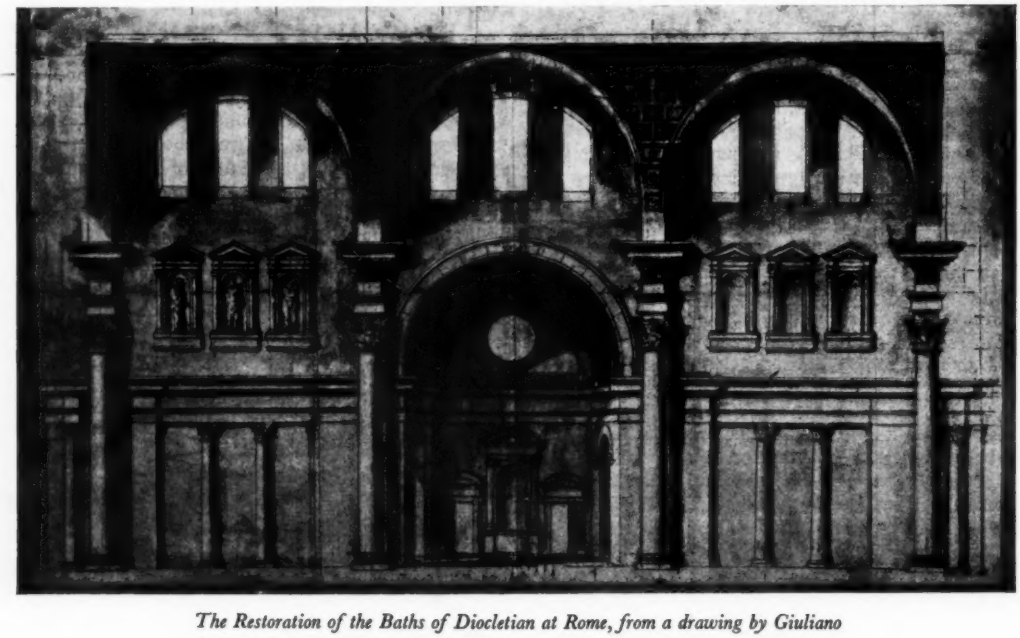
LITERATURE

THE ARCHITECT IN HISTORY

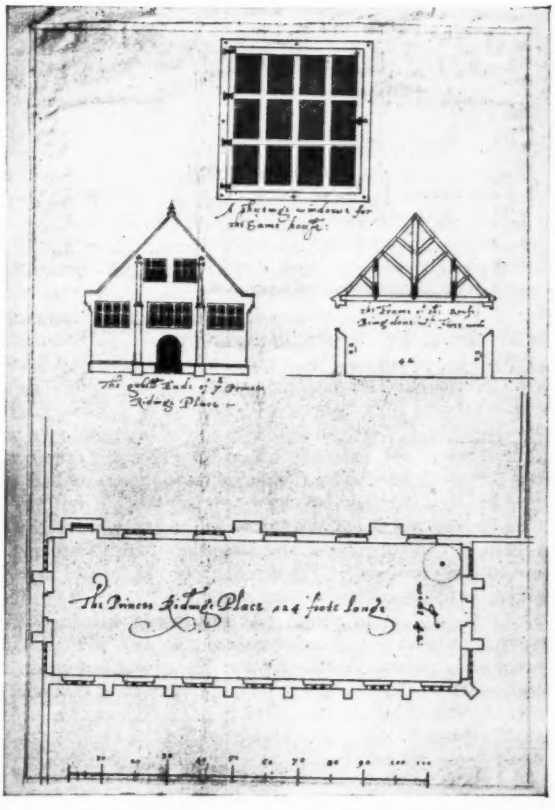
ARCHITECTS, as Mr. Briggs remarks, are frequently reproached with turning their eyes too much towards the past. Engineers and "hard-headed" business men, gazing pityingly upon their efforts, are apt to remark that they seem to be more concerned with the great works of the past than with the practical needs of the present. To a certain type of modern mind, ugliness seems a necessary condition of efficiency, and critics of this kind will blandly ignore the glaring inefficiency of the average factory building of fifty to a hundred years ago and the eminently practical character of the much better looking churches—for instance—which were being put up about the same time. However, there is no arguing with an engineer, and we may be content with Mr. Briggs's comment that architects are very properly "proud of their long ancestry"—it "forms a beacon to light the student on his arduous path." An architect, like a painter, can never be entirely forgetful of his ancestry.

Mr. Briggs has put a tremendous amount of work into this book—not original work, be it understood, for he says himself that he is no classical scholar, and he has relied, for his authorities, mainly upon translations or the extracts of earlier commentators. But though it is well-trodden ground, there is a lot of it, and Mr. Briggs has been over almost every inch, so to speak, with a comb, carefully disentangling anything which bears upon the difficult question of the professional and social status of the architect, and the exact nature of his duties, in the ages that are past. The extent of his undertaking may be gathered from the fact that Mr. Briggs has had to confine his attention to England, France, and Italy during the Renaissance period, and to England alone in the nineteenth century. Otherwise the work must have run into several volumes.

As a result of all this reading, Mr. Briggs has arrived at the inevitable and common-sense conclusion, which is, briefly, that



The Restoration of the Baths of Diocletian at Rome, from a drawing by Giuliano da Sangallo in the Uffizi Gallery at Florence. [*From* The Architect in History.]



Working Drawings of a Riding School, from the Smithson collection. [*From* The Architect in History.]

the status of the architect in ancient and medieval times was probably much more like that of today than is commonly supposed. His rather disconcerting anonymity is a mere accident. We have the names of some of the Egyptian architects, but owing to the peculiar style adopted in their inscriptions we, unfortunately, know as little about their real characters as we do in the case of the Pharaohs. They were clearly men of position. With the Greeks, we encounter that attractive versatility which was repeated among the artists of the Renaissance and is not entirely lost today. Ictinus, one of the architects of the Parthenon, combined literature with architecture, as Mr. Briggs himself does.

Mr. Briggs lightens his argument with some amusing anecdotes. Dinocrates, an architect of Macedonia in the time of Alexander the Great, was very anxious to secure the town-planning contract for the new city of Alexandria. The usual letters of recommendation to influential persons having failed, he adopted a method of gaining attention, which, as Mr. Briggs says, is "worthy of the attention of every aspiring professional man."

> . . . he undressed himself in his inn, anointed his body with oil, set a chaplet of poplar leaves on his head, draped his left shoulder with a lion's skin, and holding a club in his right hand, stalked forth to a place in front of the tribunal where the king was administering justice.

Of course he was noticed, submitted his scheme, and many of the streets of Alexandria follow his "lay-out" to this day. "Substitute horn-rimmed spectacles and side-whiskers for Dinocrates' disguise," remarks Mr. Briggs—a little unkindly, perhaps—"and you have, *mutatis mutandis*, a very accurate portrait of the pushful architect of today." In some other respects, however, the link between the ages is less noticeable. At Ephesus, for instance, there was a law under which, if an architect's "extras" exceeded the contract amount by more than 25 per cent., he was held liable for them personally. I shall not even attempt to suggest what would happen if so barbarous a regulation were reimposed today. Without being too modern and personal, it may be mentioned that the present Houses of Parliament would have cost the late Sir Charles Barry over a million pounds! Yet the Roman writer, Vitruvius, had the effrontery to suggest that a similar rule should be imposed in Imperial Rome. Apparently "extras" had become rather a nuisance in his time.

Passing on to the Middle Ages, Mr. Briggs has no difficulty in disposing of the popular theory that there was no such thing as a medieval architect, and that the vast cathedrals which we admire today just "grew of themselves," under the pious inspiration of a few illiterate carpenters or bricklayers. The medieval architect was the master-mason, who, though he is usually (but not always) anonymous, was a man of some wealth and importance. Moreover, we possess several plans.

With the Renaissance, the clouds roll away. But though his path now lies plain before him, Mr. Briggs is as careful and—within his limits already mentioned—as exhaustive as ever, following up every by-path and never making a statement without giving his authority. We meet our friend, the general contractor (though Soane had none at the Bank as late as 1788), the pupilage system, and the familiar method of public competitions. Mr. Briggs adds some thoughtful and suggestive pages on the subject of the architect's education, into which we cannot follow him here. Enough has been said to show that he has written a most useful and timely book, which, apart from its obvious value to professional men, will do much to meet the newly-aroused curiosity of the general public on all questions connected with architecture—and on none more than the personalities of our great builders.

CLENNELL WILKINSON

The Architect in History. By Martin S. Briggs. Oxford University Press. 10s.

CORRESPONDENCE

PROTESTANTISM AND ART

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—I note in his second letter Mr. Jackson says that the monasteries had enormous wealth and that "very little was spent on the poor or on education." Really I cannot think he is unaware that our universities owe their very foundation to the monastic institutions. As regards the subject of the poor I would refer to Lingard (*History*, vi, p. 107), who says of this period: "Within the realm poverty and discontent generally prevailed and the increasing multitudes of the poor began to resort to the more populous towns in search of that relief which had been formerly distributed at the gates of the monasteries."

How Mr. Jackson can admire the works of the monks, and at the same time refer to the "greed" behind it, appears to me to be rather inconsistent. If it is contended that erecting and beautifying churches to the glory of God is a sign of greed, then the present Anglican ecclesiastics of Liverpool may be indicted on this charge.

Most students of history know that fifteen out of sixteen of the Catholic bishops refused to take the oath of supremacy—in Elizabeth's reign—and were deposed and dealt with as was customary in that period. I do not recollect that "freewill" played any part in the ejection of the community and its dependents from the abbeys of Glastonbury, Reading, Colchester, etc.

A. H. A.

[This correspondence will now have to cease.—Ed. A.J.]

GLAZED TILES

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—I was much interested in Mr. Baillie-Scott's letter on tiles. There is a great difficulty in getting a good tile for grate surrounds or bathrooms. Since the supply of de Morgan tiles was exhausted it has been practically impossible to get an English tile, and old

Dutch, Spanish, and particularly coloured Persian tiles have become impossible, owing to their price. Fine tiles can only be produced in a similar manner to those used before 1800, made, drawn, and glazed and fired by hand; designed by a person steeped in the traditions of the craft, with colours mixed, if not ground and compounded, by hand; baked in a rather primitive form of oven. The charm of a tile depends on its surface and texture, its reflections as well as its colour; the variation more than the homogeneousness of its colour, the accidents of its painting, often the running of its stains and glazes, all of which things were lost sight of by nineteenth-century producers, and apparently have not since been found. I do not believe there are no workers who could produce these results. I am certain that nine architects out of ten would prefer to use a fine British tile if they could get one, but their lady clients would probably want a bit of leading until assured that these were "the" thing.

HAROLD FALKNER

THE STANDARD SIZES OF BRICKS

The following letter has been sent by Mr. Nathaniel Lloyd to the Secretary of the R.I.B.A.:

SIR,—For some time it has been in my mind to write you with reference to the "Standard Sizes of Bricks," set out on pp. 604–6 of the R.I.B.A. Kalendar. These only deal with sizes, but my experience (and the experience of many others) is that, by implication, they actually set up bad standards in other respects.

The R.I.B.A. Standard of Sizes of Bricks was settled twenty-three years ago (the addition made eight years ago applied only to thickness), and I do not think that any conference in which architects were included would now be content with such an incomplete definition for bricks. The most that can be said for the "Standard Sizes" is that they apply only to common bricks—usually unsuited to face work—but this is not stated.

In view of the increasing popularity of brick as a building material, both for face work and for internal work, I venture to suggest that the time is ripe for a more complete definition of what architects regard as "good bricks" for both purposes. This should embrace form, texture, and colour as applied to bricks for various purposes. Such a guide would certainly be helpful to the brickmaking trade in endeavouring to meet architects' requirements, and would seem calculated to advance materially that better standard of general building which we all desire.

I might continue by outlining the ground to be covered by the suggested new and more complete definition, but this would be better threshed out by any committee dealing with the matter, to which most of the points would naturally occur.

A brickmaker put it thus: "We are ready to turn out the bricks if architects will settle what they want." In short, an authoritative lead is wanted.

ANNOUNCEMENTS

Messrs. Dixon and Quick, architects and surveyors, have removed their offices to 180 High Street, Guildford.

Mr. S. Rowland Pierce, architect, has moved his office to 39 Great James Street, Bedford Row, W.C.1. Tel. No.: Museum 6235.

Mr. Frederic Towndrow, A.R.I.B.A., has been appointed full-time teacher in architecture to the Regent Street Polytechnic.

Messrs. R. J. G. O'Donoghue, A.R.I.B.A., and F. W. Halfhide, A.R.I.B.A., have moved their office to 5 Great Turnstile, High Holborn, London, W.C.2. Telephone: Chancery 7027.

The Council of the R.I.B.A. has decided that after December 31, 1928, no one shall be registered as a probationer unless that person has passed one of the recognized public examinations in the required subjects. A list of the examinations recognized may be obtained free at the R.I.B.A.

LAW REPORTS

ALLEGED BREACH OF LEASE: ALTERATIONS

Westminster Bank v. *Salter and others. Chancery Division. Before Mr. Justice Clausen*

This was a motion in an action by the Westminster Bank against the defendants, Salter and others, and had reference to the reconstruction of a shop front at Mount Pleasant, Tunbridge Wells, which it was alleged was a breach of a covenant in the lease held by the defendants in respect of the premises.

Mr. Preston, K.C., for the plaintiffs, said the superior landlord had declined to deal direct with defendants, but he had made a suggestion to the plaintiffs on which he would grant a licence to make alterations. The landlord would only consent on certain terms.

Mr. Hurst, K.C., for the defendants, said substantially the work had been completed, at an expenditure of £250. The shop was a sweet shop. Counsel alleged that extravagant terms had been demanded, and there was no chance of the parties arriving at any decision in the matter. The question in the case was whether the covenant in dispute covered the alterations the defendants had made in the shop front. Defendants could open and carry on business without spending any more money.

Mr. Preston did not accept that statement. His instructions were that the alterations were far from complete. He would be content with an undertaking by the defendants not to do any further work on the alterations, or an intimation to that effect.

Mr. Hurst said his clients wished to put a coat or two of paint on the woodwork.

Mr. Preston did not think there would be any objection to that, but the alterations must not be completed.

Defendants gave the required undertaking and the matter stood over till the trial of the action.

ALLEGED BREACH OF COVENANT TO REPAIR

Lindsay v. *Owens. King's Bench Divisional Court. Before Lords Justices Atkin and Lawrence*

In this case the plaintiff, Mr. William H. Lindsay, the landlord of certain premises at Weybridge, appealed from a judgment of Judge Randolph, K.C., sitting at the Windsor County Court, in favour of the defendant, Mr. Frederick P. Owens, who was his tenant and the defendant in the action, which arose out of a dilapidation claim under a tenancy agreement.

Sir T. Willes Chitty, K.C., who appeared for the appellant, said the learned County Court judge had held in the correspondence that there was accord and satisfaction. Counsel's submissions on that were: (1) That there was nothing approaching accord and satisfaction in the correspondence; and (2) even if the correspondence showed accord and satisfaction there was no consideration for it. There was a liquidated amount of rent due and that amount was paid, but the payment of that amount could not be a consideration for a waiver or satisfaction of other claims. The matter depended on a few letters. The facts were that by an agreement of tenancy a house at Weybridge was let to the defendant for three years from November, 1921, at a rent of £90, and defendant also agreed to keep all the internal parts of the premises in good tenantable repair, and it was for an alleged breach of that covenant or agreement that Mr. Lindsay had sued. Defendant held over until at least July 31, 1925. The early correspondence disclosed a running fight between the tenant and plaintiff's agent, the tenant saying he was not to put the premises in repair, but that he only covenanted to keep them in repair. Under these circumstances counsel pressed for the matter to be referred back to the County Court judge.

Mr. G. O. Slade appeared for the respondent, and submitted that there was evidence on which the learned County Court judge could arrive at the conclusion he had. Here the question

was one of fact, and that being a matter for the judge who tried the case, it should not be referred back to him.

The Court allowed the appeal and ordered a new trial of the case, the appellant in any event to bear the costs of the hearing before their lordships.

Lord Justice Atkin said that the defence to the claim was that plaintiff or his predecessors in title accepted a sum of £56 9s. 7d. in respect of all rent due to July 31, 1925, and in settlement of all claims against him under the tenancy agreement. The question before their lordships was one of law as to the construction to be placed on the correspondence. On the correspondence there seemed to be no agreement, and his lordship thought the matter should go back to the County Court judge for him to consider the question and to give the parties an opportunity of calling any evidence they wished.

Lord Justice Lawrence agreed.

REPAIRS. QUESTION OF FORFEITURE

Stennett v. *Doyle. Chancery Division. Before Mr. Justice Tomlin*

This matter again came before his lordship, and concerned certain repairs to the White Hart Hotel at Gainsborough, Lincs, the plaintiff asking for possession on the ground of the failure of the defendant to carry out the terms of the covenants in the lease to keep the premises in good habitable repair. The lease was for fourteen years, and the plaintiff alleged that the defendant, Miss Doyle, had allowed the premises to get into such a state of disrepair that they had lost their status as the principal hotel in Gainsborough.

Mr. Gavin Simmonds, K.C., for the defendant, said his client applied for relief from forfeiture. She had given an undertaking to immediately commence and diligently proceed with the repairs, and this she had carried out.

Mr. C. A. Bennett, K.C., for the plaintiffs, stated that the president of the Auctioneers' and Estate Agents' Institute had appointed Mr. Frank Swift, surveyor, Birmingham, to prepare the schedules of dilapidations, and Mr. Swift had reported that he was perfectly satisfied with the work so far as it had been done, and that Miss Doyle was doing everything possible to comply with the order. Good progress had been made and the work was being done by competent men.

His lordship said that in those circumstances he would grant Miss Doyle relief from forfeiture if she undertook to complete the work by the end of August.

The necessary undertaking was given. The defendant was ordered to pay the costs of the action and the surveyor's fees.

OBITUARY

Mr. F. Walker

Many will learn with regret of the death, in his eightieth year, of Mr. F. Walker. Until his retirement some six years ago, he was an outstanding figure in building circles, and had been engaged as clerk of works upon the erection of some notable buildings. To his intimate friends he was known as a writer of polished verse, and a lifelong student of literature. At one time he contributed to the technical Press, and for several years edited the *Journal of the Clerks of Works' Association*, which he raised to a high level of literary merit. He was also the author of *Practical Brickwork*, a standard work which, although written in his youth, still earned high commendation from the reviewers of a recent edition. As a young man he went to the U.S.A., and became an inspector of works under the Government, being thus engaged upon the construction of the fortifications that then protected New York harbour. He was for many years a member of the Arts and Crafts Society, and was one of the founders, with William Morris, of the "Hammersmith Parliament." In retirement he devoted much time to the study of stained glass and painting, and to revisiting the English cathedrals, of which he had a great love and an intimate knowledge.

COMPETITION CALENDAR

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

October 31. Designs are invited by the Herne Bay Urban District Council for the erection of municipal buildings and business premises on a prominent site at Herne Bay. The President of the R.I.B.A. has nominated Professor A. E. Richardson, F.S.A., F.R.I.B.A., to act as assessor. Premiums: £150, £100, £50. Printed conditions can be obtained from the Clerk to the Council, Westminster Bank House, Herne Bay. A deposit of one guinea is required for a set of the printed conditions, which will be returned upon the submission of a bona fide design.

November 30. New town hall and municipal buildings, proposed to be erected on a site in the Broadway, Wimbledon, for the Wimbledon Corporation. Assessor: Mr. H. V. Ashley, F.R.I.B.A. Premiums: £200, £150, and £75. Particulars from Mr. Herbert Emerson Smith, LL.B., Town Clerk. Deposit £2 2s.

TRADE NOTES

Messrs. A. Edmonds & Co., Ltd., of Birmingham and London, museum fitters and shop fitters, have obtained a contract amounting to £21,000 for museum cases for the Auckland War Memorial, Auckland, New Zealand. The firm have recently extended their works in the shopfitting department, and have important contracts in progress for shop fronts and interior fittings in both London and the Provinces.

The National Radiator Company, Ltd., have arranged the following visits for their travelling exhibit, which is fitted with a working installation of the Ideal Cookanheat and Ideal Classic radiators. September 15 and 16: Hibbs Garage Parking Ground, Princes Drive, Colwyn Bay; September 17 and 19: Red Parking Ground (corner of Conway Road), Llandudno; September 20 (afternoon) and 21: City Parking Ground, Bangor.

The important part played by the Holophane Company in illuminating the world is made manifest in the International Conference Souvenir issue of *Holophane Illumination*. Mr. Leon Gaster contributes the introduction following which are articles by experts dealing respectively with Holophane lighting in Great Britain, the United States, Argentine, Chile, France, Belgium, Italy, Holland, Norway, Sweden, Denmark, Finland, Australia, New Zealand, South Africa, and India. The company have played a leading rôle in every branch of illumination, and one of the latest fields in which the firm has been interested in the application of colour is lighting. Colour has long been a leading feature in stage lighting, for which special Holophane equipment has recently been designed. But it is now regarded as having great possibilities in cinema theatre lighting, both for the purpose of producing an agreeable and restful general effect and in order to emphasize the appeal of the film. Many special effects have been introduced by the firm in this and other directions, such as for bank and office, church, school, and shop lighting. The company have long been in evidence by reason of their special experience of installations in all parts of the world. One has only to refer to the extensive lighting of the Ford works in Detroit, the recent large public lighting scheme for Santiago, Chile, and the many important installations reviewed in the journal under review, to judge how much work of this character is being done. For the firm to obtain such a world-wide reputation is a remarkable achievement, an achievement of which *Holophane Illumination* forms an interesting and valuable record.

Steel fireproof doors are as popular as ever with the Fire Offices' Committee. This important fact becomes rooted in the mind after reading the new brochure, *Britain's Sure Shield*, just issued by Messrs. John Booth and Sons, of Bolton. As far back as 1910, the Fire Offices' Committee tested, under actual fire conditions, various types of fireproof doors, each being subjected to a temperature of 2,000 deg. Fahr. for a period of two hours, followed by a five minutes' drenching with water at a pressure of 90 lb. These tests resulted in the complete triumph of steel construction, for the steel doors not only withstood the test, but were so little

affected by the heat and water that they were re-sold and have been in constant use ever since. Subsequently, and as a result of these tests, the Fire Offices' Committee revised completely the rules and regulations for fireproof door construction, and in July, 1912, issued a new edition, which has remained as a standard ever since. In this edition the place of honour is given to steel doors, the allowable area of the openings having been increased from 35 to 56 sq. ft. The Fire Offices' Committee have just issued new regulations governing the construction of fireproof doors, and again steel fireproof doors are placed first. It is therefore evident that they have complete confidence in the steel fireproof door as the best type for fire prevention. But perhaps the most convincing statement in the brochure is that the Fire Offices' Committee have installed a Booth's fireproof door to protect their testing chamber.

Ideal Classic radiators have been installed in Marlborough House, the new London residence of H.R.H. the Prince of Wales. This announcement is made in an illustrated folder issued by the manufacturers, the National Radiator Company, Ltd., to point out the special features possessed by these radiators, and the advantages to be secured by their installation. It is stated that the reduced size of the columns and their spacing effects a considerable saving in floor space, ranging from 30 to 40 per cent. in one pattern to 50 to 70 per cent. in another. It is also stated that the small internal area of the columns results in rapid heating and circulation, with correspondingly rapid cooling. As a test of reliability the radiators are twice subjected to a hydraulic test pressure of 100 lb. per square inch, first, before the sections are machined, and again after the complete radiator is assembled. Another folder has been issued by the company to assist trade firms in avoiding chimney flue connections to heating and hot-water supply boilers, which are likely to result in unsatisfactory operation of the apparatus. This latter folder should be of excellent use to trade firms. The efficient operation of heating and hot-water supply boilers depends a great deal upon the suitability of the chimney and the connections being made correct and air-tight.

The directors' report of the Crittall Manufacturing Co., Ltd., for the year ended May 31 last states that the profit for the year amounted to £163,285, an increase of nearly £50,000 as compared with the previous year. Adding the amount brought in, £15,355, the total available for appropriation is £178,641. Deducting the interest on the £150,000 6 per cent. debenture stock, the first half-year's dividend on the 200,000 7 per cent. preference shares, interest on loans, governing director's salary, and directors' fees, £12,408, there remains £150,232. This, with the share premium account, less preliminary expenses written off, gives a total of £221,273. The directors recommend that this sum be dealt with as follows: The payment of the second half-year's dividend on the 7 per cent. preference shares, £7,000; the placing to general reserve, £70,000; to depreciation reserve, £25,000, raising the reserves to £149,650; and the payment of a dividend at the rate of 15 per cent. per annum on the £600,000 ordinary share capital for the past year, leaving £29,273 to be carried forward as against £15,355 brought into the present accounts. The directors state that the company has had a very satisfactory year's trading, and that the business, both at home and abroad, continues to expand. The Board considers that the time has now arrived when the position of the company justifies the creation of a fund for the benefit of employees, and sanction will be asked at the forthcoming meeting for the allocation, out of the profits of the past year, of a sum to form the nucleus of the fund.

ST. MARY'S CHURCH, FORT ST. GEORGE

St. Mary's Church, Fort St. George, India, an illustration of which appeared in the electrical supplement in our issue for July 13, was wired with the Henley wiring system. Messrs. W. T. Henley's Telegraph Works Co., Ltd., the owners of the Henley wiring system, supplied us with the photograph of the church, from which our illustration was reproduced.

CURRENT ARCHITECTURE

Following are the names of the contractors and sub-contractors for the buildings illustrated on pages 349 to 354.

Norwegian Seamen's Institute and Church, Albion Street, Rotherhithe, London, S.E., for the Norwegian Sailors' Mission, Bergen, Norway. General contractors, Messrs. G. E. Wallis and Sons, Ltd., Maidstone; clerk of works, Mr. H. C. Forder; general foreman, Mr. Dunmall; contract price, £25,845. Sub-contractors: Val de Travers Asphalte Co., dampcourses and asphalt; Siegwart Fireproof Floor Co., concrete blocks; Considere Construction Co., reinforced concrete to tower foundation; Collier's 2 in. Bricks (Reading), facing bricks; Portland stone; G. E. Wallis and Sons, artificial stone to boundary walls; Redpath Brown & Co., structural steel; Roberts Adlard, tiles; Messrs. Morris Westminster Guild, Ltd., lead lights; Elsley, Ltd., cast lead; Hollis Bros., wood-block flooring; Comyn Ching & Co., central heating; Jötul, Oslo, Norway, stoves; Bratt Colbran & Co., grates; Richmond Gas Stove Co., gas fires; South Metropolitan Gas Co., gasfitting; National Radiator Co., Ideal boilers; Oswald Jones & Co., Maidstone, electric wiring; Metro-Vick Supplies, Ltd., electric light fixtures; Jennings & Co., and Pryke and Palmer, sanitary fittings; Yannedis, door furniture; Crittall & Co., casements; Daymond & Co., decorative plaster and wood carving; Gilbert Seale and Son, stone carving; Art Pavements and Decorations, Ltd., marble; Heal and Son, furniture.

Radley College. General contractors, Chapman, Lowry and Puttick, Grayshot, Hants. Sub-contractors: Delshaw & Co., Ltd., electrical work; Dent and Hellyer, heating and sanitation; Engert and Rolfe, asphalting; Siegwart Co., fireproof floors; Bratt Colbran & Co., grates and mantels; Murray and Jones, paint; Wiggins & Co., tiling; R. E. Pearse & Co., casements; Sessions and Sons, Ltd., flooring, B.R.C. fabric used in foundations; S. and E. Collier, Ltd., bricks and tiles; H. Young & Co., steelwork. Boys' house: Aston Construction Co., Eagle Wharf Road, Hoxton, N.1. Engine-house: Young & Co.

NEW INVENTIONS

[The following particulars of new inventions are specially compiled for THE ARCHITECTS' JOURNAL, by permission of the Controller of H.M. Stationery Office, by our own patent expert. All inquiries concerning inventions, patents, and specifications should be addressed to the Editor, 9 Queen Anne's Gate, Westminster, S.W.1. For copies of the full specifications here enumerated readers should apply to the Patent Office, 25 Southampton Buildings, W.C.2. The price is 1s. each.]

LATEST PATENT APPLICATIONS

22526. Adams, M. J. Chimney pots. August 27.
22541. Astley, P. A. Sliding, &c., doors. August 27.
22196. Napoli, A. di. Floors or ceilings. August 23.
22525. Taylor, J. W., and Taylor, T. Fireplaces. August 27.
22468. Kemmann, G. Device for avoiding bodily injuries from closing doors. August 26.

SPECIFICATIONS PUBLISHED

275685. Tate, M. H. Production of floor, roof, and wall coverings.
276068. Lewenstein, A. S. Floors and flooring blocks or units.
276069. Barnes, A. H., and Hillier, E. R. In situ concrete building construction.
276099. Grieve, E. Securing-ties for hollow brick and like walls.
276115. Woolaway, F. Chimney top or cowl.

ABSTRACT PUBLISHED

273787. Mackenzie, K. D., of F. Braby & Co., Ltd., Glasgow. Buildings and structures: pipes.

READERS' QUERIES

H. AND C. SUPPLIES FOR A SMALL HOUSE

"Circulate" writes: "I wish to install a simple and inexpensive system for running hot and cold supplies in a small house. Hot circulating pipes are required to bath, lavatory basin, hot rail, and kitchen sink, and cold supply pipes to the same and to the w.c. cistern. Please tell me the best sizes for the pipes, cold water cistern, galvanized hot water cylinder, expansion pipe, and the iron-back boiler with iron pipes, and the best positions to install them. The accompanying plans and section show the positions of the sanitary and other fittings to which it is desired to connect the hot and cold water supplies."

A large range some 5 ft. wide is shown on the plan, and economy in fuel suggests that the hot water system should be worked by means of a boiler in the range. This method is quite feasible in spite of all that has been said concerning the old-fashioned character of ranges; and whether a range or an independent boiler is used, the success of the hot water system depends very largely upon the goodwill and the skill of the stoker. The cylinder may either be placed in the kitchen near the range, or in the cupboard in the bathroom, where it will help in airing the linen.

If the cylinder is placed at a distance from the boiler, the intervening pipes should be lagged with asbestos to prevent waste of heat; but fair results have been obtained even without lagging up to distances such as are shown on the plan between range and bathroom, provided the pipes are large and laid to proper falls.

The supply cistern should be in the attic or the roof, so that a fair pressure is applied to keep the circulation of water throughout the system in active motion. The size of the boiler must depend somewhat upon the make of range, since a reasonable space must be left for fuel in the fire-box. The maker of the range will generally advise as to the best form and size of boiler to work with it.

The cylinder should contain from eight to ten times the quantity of water in the boiler.

It is a good plan to have a fullway stop-valve on the normal return near the bottom of the cylinder and a by-pass return from a point somewhat higher in the cylinder, so that the effective size can be adjusted to the demands that will be made on it.

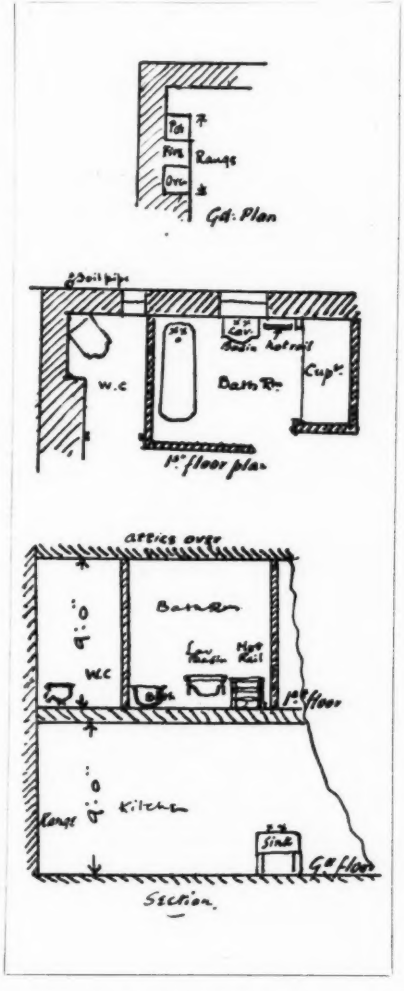
A single bath on a hot day might be quickly supplied by working with the top of the cylinder and the by-pass, whereas the whole contents might be used by opening the stop-valve and working on the normal return.

A fifty-gallon cylinder with thirty gallons above the by-pass might be suitable in the present case, but it should be borne in mind that a large cylinder means a longer time taken in obtaining hot water.

Sizes of pipes should be large in districts where lime may be expected to deposit in them from "hard" water. The flow and return between boiler and cylinder should in such places be 2 in. bore. In other districts 1¼ or 1½ in. bore would suffice.

The cold supply must be capable of delivering water into the cylinder at a quicker rate than it will be drawn out at the draw-offs, or air will enter the pipes and interfere with the circulation, either retarding or entirely stopping it. One inch or 1¼ in. bore might be suggested for the supply pipe, which should enter horizontally through the side of the cylinder near the bottom, or if directed vertically upwards, it should have the flow spread out sideways by a bend in the pipe or a "tee" head screwed upon it. These devices prevent the inrush of cold water rising straight to the top and cooling the heated water which has risen to the upper part of the cylinder.

The cold water cistern should be capable of filling the whole heating circuit at times when water happens to be cut off at the main, but this rule is not by any means always observed. The cistern might be made to contain sixty or one hundred gallons. It should be provided with a wooden casing and lid to protect the water from frost, and the lid must be pierced to allow of drips from the expansion pipe from the cylinder falling into the cistern. The expansion pipe (of 1½ in. bore) is bent over to permit of this.



Hot and cold water supplies for a small house. [See answer to "Circulate."]

The supplies to bath, lavatory, and kitchen sink may be ¾ in. bore, and the towel-rail 1 in. or 1¼ in. bore. The towel-rail must obviously be arranged to flow and return, and in good work it is usual to arrange even the draw-offs on a flow and return system to avoid wasting heat and water in running the taps until the flow is of the required temperature. In such cases the flow and return pipes are also lagged to keep every part of the system as hot as possible.

The size of the rising main depends upon the pressure at which the water is supplied, but it is generally wise to have a pipe large enough to supply water to the cisterns faster than they can be emptied to avoid air lock, as already stated. The ball valves should conform to the same rule.

The cisterns must be given adequate overflow pipes to deal with incoming water, and care should be taken to direct overflows harmlessly away from parts of the building which will suffer from wet.

The waste-water-preventer cistern may be supplied by means of a ¾ in. branch, with the inlet from the ball valve taken down so that water is always introduced quietly below the lowest water level. Plumbers sometimes attempt to modify the noise of the inrushing water by reducing the diameter of the pipe, but this rarely has the desired effect, and has the disadvantage that the cistern will take a long time to fill.

The cold water pipes are made to match the hot water branches in size, and are laid beside them as a precaution against frost.

The pipes should be of galvanized wrought iron steam tubing, bracketed out clear of the wall surfaces to proper falls, and painted in heat-resisting paint. If a washable distemper finish is desired, two undercoats of oil paint should be applied first, or the absorbent distemper will soon take on a dirty rust colour. Taps and valves should be in bronze, which will tone to a good colour without polishing.

The safety-valve should be placed near the boiler, where it is in view, but where escaping steam can be carried into the chimney or a ventilating flue. The cleaning-out cocks should be fitted with screw connections for emptying by means of a flexible hose.

Long screw plugs in the straight ends of the pipes should be used. The hose connection is made in the side of the pipe where the plug normally stops the flow. After the hose is connected a few turns of the plug permit the water to pass.

THE WEEK'S BUILDING NEWS

The MERIONETH C.C. has asked the county surveyor to prepare plans for the erection of police buildings at Penrhyndeudraeth.

*

The TYNEMOUTH Corporation has asked the borough engineer to prepare, in connection with proposals for the provision of better means of communication between North and South Shields, plans showing the converging roads and where he recommends a connection should be made to link up such roads. It is suggested that an expert should be engaged to advise as to the best means of communication between the two boroughs for all kinds of traffic.

*

The EAST SUFFOLK C.C. is acquiring sites at Bramford, Framsden, Stonham, Witnesham, and Yoxford for the erection of roadmen's cottages.

*

The East Suffolk C.C. is in negotiation with the Admiralty, and Messrs. Buckland and Haywood, Birmingham, architects, regarding road improvements at HOLBROOK, where an extensive Royal Naval Hospital School is to be built.

*

The East Suffolk C.C. has prepared a scheme for the reconstruction of Sproughton Road, IPSWICH, and the construction of a new bridge in place of the existing timber structure at an estimated cost of £12,750.

*

Messrs. G. J. Brown and Son, surveyors to the Ipswich Beet Sugar Factory, are to construct an underbridge at the SPROUGHTON level crossing.

*

The Warwickshire Education Committee has decided to proceed next year with the scheme for the erection of a new central school at KENILWORTH.

*

The Bucks County Council has prepared preliminary plans for the reconstruction of MATLOW Bridge.

*

The Board of Education has approved plans submitted by the managers for remodelling the Church of England boys' school, FARINGDON, Berks.

*

The managers of the Church of England schools, ABINGDON, have prepared plans for the erection of a new school for 200 boys so that the old buildings can be remodelled as a girls' school.

*

On behalf of the Michelin Tyre Co., the STOKE-ON-TRENT Corporation Housing Committee has decided to erect as soon as possible thirty-six two-bedroom parlour-type houses and fourteen three-bedroom parlour-type houses on land in Water Street.

The managers of the Church of England schools, WANTAGE, have prepared plans for the erection of a new boys' school.

*

The Berkshire Education Committee has appointed a committee to report as to the provision of additional school accommodation for the WOKINGHAM district.

*

The PRESTON Corporation is to erect 450 houses on the Callons Farm estate, and four different contracts are to be made for the scheme.

*

The NOTTINGHAM Corporation Housing Committee has now made arrangements to commence the development of the Bulwell Hall estate, where over 800 houses of small type are to be erected, and for which tenders are being invited.

*

The BIRMINGHAM Corporation is now to proceed with schemes for the erection of over 400 houses on the Fox Hollies housing estate.

*

The IPSWICH Corporation has obtained sanction to grant another 100 housing subsidies.

*

The governors of the Technical Institute, HIGH WYCOMBE, have prepared a scheme for extensions.

*

The RUSHDEN U.D.C. is to erect fifty houses on the Irchester Road estate.

*

The BLAKENEY Parish Council is seeking the co-operation of the Norfolk C.C. in a scheme for improving the quay.

*

Plans passed by the HOLBORN B.C.: New buildings, site of 10, 12, and 14 Macklin Street, for Messrs. Nicholas and Dixon Spain.

*

The CHESHAM U.D.C. is to erect 100 houses on the Pond Park estate.

*

The East Suffolk C.C. is in communication with the L.N.E.R. regarding the need for the improvement of MUTFORD Lock bridge, which is narrow and dangerous to traffic.

*

The East Suffolk C.C. has had an expert report from Mr. A. Havelock Case regarding proposals for solving the road flooding at BLYTHBURGH. He recommends the scheme of Mr. W. Jervis, the county surveyor, which will cost about £30,000, for raising the roadway.

*

The PETERBOROUGH Corporation proposes an architectural competition in connection with the reconstruction of Narrow Street, a scheme estimated to cost £200,000.

The PLYMOUTH Corporation has approved the following plans 1: extension to the Presbytery at Holy Cross Church, Plymouth, for the Rt. Rev. Bishop of Plymouth, Dr. Keily. 2: extensions to the furnishing showrooms of Messrs. B. Taylor and Company, Mutely, Plymouth. 3: alterations at Clifton Hotel, Clifton Street, Plymouth, for Mrs. E. Chilcott, Plymouth. Mr. L. F. Vanstone of Plymouth is architect for the three buildings approved.

*

The OSSETT Corporation is to purchase the Swithenbank estate for another housing scheme.

*

The borough engineer of CHELTENHAM has prepared plans for extensions at the dust destructor.

*

Plans passed by the EASTBOURNE Corporation: Alterations and additions, White Hart Hotel, Firle Road, for Mr. S. H. Tilman, architect, for Rock Brewery (Brighton), Ltd.; fives courts, Summerdown Road, for Mr. B. Stevens, architect; extensions, saloon bar, Devonshire Park, for Devonshire Park Co.; two houses, Milton Road, for Mr. C. Ford, architect; eight houses, Longland Road, for Messrs. Rowsell and Ticehurst; six houses, Victoria Drive, for Messrs. Weller and Seymour.

*

The WORTHING Corporation has under consideration proposals for the extension of the promenade at the Splash Point end.

*

The St. Anne's Church Council is to extend the schools and erect a parish hall in Newcastle Avenue, WORKSOP.

*

Having interviewed the engineer of the L.M.S.R., the city engineer of LEEDS has prepared amended drawings of bridges to be erected on the line of the Ring Road from Whitehall Road to Gelderd Road, the cost being estimated at £73,000.

*

The MANCHESTER Corporation has passed a scheme for the erection of 158 houses on the Sutton estate at Gorton.

*

The MANCHESTER Education Committee has obtained a site at Withington for the erection of an elementary school.

*

The MANCHESTER Corporation Estate Committee has given instructions for the preparation of plans for the development of the Wythenshawe estate.

*

Messrs. Bradshaw, Gass, and Hope, architects, are carrying out extensions at the premises of Messrs. Hodgkinson and Gillibrand in Lower Bridgeman Street, BOLTON.

The BOLTON Corporation has passed amended plans submitted by Messrs. Tonge and Holt for the erection of a picture palace at Churchgate.

*

The BOLTON Watch Committee is considering a scheme for the enlargement of the fire station.

*

The LEEDS Corporation is purchasing a site at Carr Crofts, Armley, for the erection of public baths and washhouses.

*

The LEEDS Corporation has asked the city engineer to obtain tenders for the erection of a further ninety-six houses and seventy-six flats on the York Road estate, and 104 houses on the Meanwood housing estate.

*

The LEEDS Corporation has passed plans for the proposed stands at the new greyhound racing track to be erected in Elland Road by the Greyhound Racing Association.

*

The SALFORD Corporation has prepared a scheme for dealing with the Springfield Terrace unhealthy area.

*

Plans passed by the WATFORD Corporation: Two houses, Gammons Lane, for Messrs. Boxall and Eakins; additions, Elfrida Road, for St. James's Church Council; rebuilding workshops, Market Street, for Messrs. W. King and Sons; rebuilding workshop, Market Street, for Messrs. D. and C. Eames.

*

Plans have been prepared on behalf of the trustees for additions at St. Mary's Parish Hall, WATFORD.

*

Plans passed by the OXFORD Corporation: Motor-house, Turl Street, for Jesus College trustees; eighteen houses, Lincoln Road, for Messrs. T. H. Kingerlee and Sons; additions, County Hall, New Road, for county surveyor; additions, club premises, George Street, for trustees of North Oxford Liberal Club; two houses, Hernes Road, for Mr. D. Mealing.

*

The GLASGOW Corporation has appointed a special committee to consider the advisability of establishing a municipal aerodrome.

*

The GLASGOW Watch Committee is submitting for the approval of the Secretary of State plans for the erection of a police station at Millerston.

*

Messrs. Mactaggart and Mickel, Ltd., are to erect seventy-six dwellings at Meikle-Aikenhead, GLASGOW.

*

The Western Heritable Investment Co., Ltd., has prepared a scheme for the erection of 722 subsidy houses of the four-apartment type at King's Park, GLASGOW.

The GLASGOW Corporation Housing Committee has approved the plans of the housing director for the erection of sixty tenement houses of the cheaper type in Crossloan Road.

*

Plans passed by the BERMONDSEY B.C.: Alterations, 16 White's Grounds, for Messrs. Leighton and Higgs, architects; rebuilding, 148 St. James's Road, for Mr. A. W. Franey.

*

The BOLTON Corporation has obtained sanction to purchase land adjoining the Moorfield estate for the erection of thirty-six houses.

*

Messrs. Kempster and Williams are to build a post office and estate office in St. Albans Road, WATFORD.

*

The WATFORD Corporation has obtained sanction for a loan of £100,000 for further housing advances.

*

The LEEDS Corporation has purchased land off Henconner Lane, Bramley, for a housing scheme.

*

The Carnegie Trust has approved of the plans of the WATFORD Corporation, prepared by Mr. H. A. Gold and the borough engineer as joint architects, for the erection of the new public library at a cost of £20,000.

*

Plans passed by the LEEDS Corporation: Forty houses, Easterly Crescent and Arlington Road, Harehills, for Messrs. C. H. and F. Lax; twenty-two houses, Easterley Crescent, for Mr. Frederick Bernard Lax; two houses, Stainbeck Road, for Mr. Mark Bristow; four houses, The Oval, Killingbeck, for Mr. John Common Morris.

*

The LEEDS Corporation Gas Committee has approved the plans for the erection of a new gas depot at the junction of New York Road and Bridge Street.

*

The LEEDS Corporation is seeking sanction to borrow £12,000 for the purchase of land and property in Goodman Street and Donisthorpe Street for the provision of garage accommodation for motor buses.

*

The LEEDS Corporation is seeking sanction for a loan of £97,500 for the building and equipping of the extension of the tramway depot in Swinegate.

*

The BOLTON Corporation is seeking sanction to grant another 100 housing subsidies.

*

Plans for a new central school in Kimberley Road, at an estimated cost of £18,000, and extensions to the RUGBY Technical School, at an estimated cost of £6,000, are being prepared by the Warwick county architect.

Plans are being prepared by the Warwick county architect for the new secondary school for girls at SUTTON COLDFIELD. The cost is estimated at £38,000.

*

Plans for the extension of the school at WYKEN GRANGE are being prepared by the Warwick county architect.

*

The Warwick county architect is preparing plans for the erection of a mining school at WILNCOTE.

*

The NORTHFLEET U.D.C. is making an offer for land on the Wombwell estate for another housing scheme.

*

The EAST GRINSTEAD R.D.C. is preparing a scheme for the erection of thirty-two houses at Three Bridges.

*

The Worlds Stores Ltd., are to rebuild their premises on a new site in Fratton Road, PORTSMOUTH.

*

Plans passed by the BOLTON Corporation: Shop premises, Great Moor Street, for Mr. W. J. Maine; calender-room, Temple Bleach Works, for Messrs. T. Cross & Co., Ltd.; tennis pavilion, Ellesmere Road, for Hulton Labour Club; covered loading-way and extensions, Great Lever Bleach-works, for Messrs. John Smith, Jr., & Co., Ltd.; new streets off Eldon Street, for Mr. E. A. Le Gendre; extensions to works and offices, Globe Hosiery Works, Lower Bridgeman Street, for Messrs. Hodgkinson and Gillibrand; six shops and houses, Higher Swan Lane, for Mr. W. Reddy-hough; ten houses, Thornton Avenue, for Mr. F. E. Thornton; shed, Lincoln Mills, Washington Street, for Messrs. E. Entwistle & Co., Ltd.; bakehouse, Back Hotel Street, for Mr. H. Swaine; lay-out, Seddon Fold, Chorley Old Road, for Bleachers' Association, Ltd.; race track, stands, etc., Manchester Road, for Bolton Greyhound Racing Co., Ltd.; packing and storeroom, Newnham Street, for Mr. H. Pilling; pavilion, Sharples Park, for Astley Bridge Cricket Club.

*

A church is to be erected on the site of Eagle House, 395 Holloway Road, LONDON, N.7, by the Seventh-Day Adventists, at a cost of £10,000.

*

Plans passed by the STRETFORD U.D.C.: Extensions, Stretford Market, for Mr. J. Butler; four roads on De Trafford estate, for Trafford Trustees; three houses, Lime Road, for Mr. M. Wheeler; sixty-two houses, Sunderland Road, for Mr. W. R. Rochelle; four houses, St. George's Road, for Messrs. Archer and McAlpin; store-shed, Park Road, for Messrs. D. Anderson and Son, Ltd.; storehouse, Talbot Road, for Precision Grinding Co.; paint store, Westinghouse Road, for Ford Motor Co. (England), Ltd.; offices, Praed Road, for Messrs. Waterhouse, Norris, Ltd.

RATES OF WAGES

			I s. d.	II s. d.
A	ABERDARE	S. Wales & M.	1 8	1 3½
A₁	Abergavenny	S. Wales & M.	1 7½	1 2½
B	Abingdon ..	S. Counties	1 6	1 1½
A	Accrington	N.W. Counties	1 8	1 3½
A₂	Addlestone	S. Counties	1 6½	1 2
A	Adlington ..	N.W. Counties	1 8	1 3½
A	Airdrie ..	Scotland	*1 8	1 3½
C₁	Aldeburgh	E. Counties	1 4	1 0½
A	Altrincham	N.W. Counties	1 8	1 3½
B₂	Appleby ..	N.W. Counties	1 4½	1 0½
A	Ashton-under-Lyne	N.W. Counties	1 8	1 3½
A₂	Atherstone	Mid. Counties	1 6½	1 2
B₂	Aylesbury ..	S. Counties	1 4½	1 0½
B₂	BANBURY	S. Counties	1 4½	1 0½
B₂	Bangor ..	N.W. Counties	1 5	1 1
A	BarnardCastle	N.E. Coast	1 8	1 3½
A	Barnsley ..	Yorkshire	1 8	1 3½
B₁	Barnstaple	S.W. Counties	1 5½	1 1½
A	Barrow ..	N.W. Counties	1 8	1 3½
A	Barry ..	S. Wales & M.	1 8	1 3½
B₂	Basingstoke	S.W. Counties	1 4½	1 0½
B	Bath ..	S.W. Counties	1 6	1 1½
A	Batley ..	Yorkshire	1 8	1 3½
B	Bedford ..	E. Counties	1 6	1 1½
A₂	Berwick-on-Tweed	N.E. Coast	1 7	1 2½
A₂	Bewdley ..	Mid. Counties	1 7	1 2½
B₂	Bicester ..	Mid. Counties	1 4½	1 0½
A	Birkenhead	N.W. Counties	*1 10	1 4½
A	Birmingham	Mid. Counties	1 8	1 3½
A	Bishop Auckland	N.E. Coast	1 8	1 3½
A	Blackburn	N.W. Counties	1 8	1 3½
A	Blackpool	N.W. Counties	1 8	1 3½
A	Blyth ..	N.E. Coast	1 8	1 3½
B₂	Bognor ..	S. Counties	1 4½	1 0½
A	Bolton ..	N.W. Counties	1 8	1 3½
A₂	Boston ..	Mid. Counties	1 6½	1 2
B₁	Bournemouth	S. Counties	1 6	1 1½
B₂	Bovey Tracey	S.W. Counties	1 5	1 1
A	Bradford ..	Yorkshire	1 8	1 3½
A₂	Brentwood	E. Counties	1 7	1 2½
A	Bridgend ..	S. Wales & M.	1 8	1 3½
B₂	Bridgwater	S.W. Counties	1 5	1 1
A₁	Bridlington	Yorkshire	1 7½	1 2½
A	Brighouse	Yorkshire	1 8	1 3½
B₁	Brighton ..	S. Counties	1 6	1 1½
A	Bristol ..	S.W. Counties	1 8	1 3½
B₂	Brixham ..	S.W. Counties	1 4½	1 0½
A₂	Bromsgrove	Mid. Counties	1 7	1 2½
C	Bromyard ..	Mid. Counties	1 4	1 0½
A	Burnley ..	N.W. Counties	1 8	1 3½
A	Bursiem ..	Mid. Counties	1 8	1 3½
A₂	Burton-on-Trent	Mid. Counties	1 7	1 2½
A	Bury ..	N.W. Counties	1 8	1 3½
A₁	Buxton ..	N.W. Counties	1 7½	1 2½
B	CAMBRIDGE	E. Counties	1 6	1 1½
B₂	Canterbury	S. Counties	1 4½	1 0½
A	Cardiff ..	S. Wales & M.	1 8	1 3½
A	Carlisle ..	N.W. Counties	1 8	1 3½
B	Carmarthen	S. Wales & M.	1 6	1 1½
B₂	Carnarvon	N.W. Counties	1 5	1 1
A₁	Carnforth ..	N.W. Counties	1 7½	1 2½
A	Castleford	Yorkshire	1 8	1 3½
B₁	Chatham ..	S. Counties	1 5½	1 1½
B₁	Chelmsford	E. Counties	1 5½	1 1½
A₂	Cheltenham	S.W. Counties	1 6½	1 2
A	Chester ..	N.W. Counties	1 8	1 3½
A	Chesterfield	Mid. Counties	*1 8	1 3½
B₂	Chichester	S. Counties	1 4½	1 0½
A	Chorley ..	N.W. Counties	1 8	1 3½
B₂	Cirencester	S. Counties	1 5	1 1
A	Clitheroe ..	N.W. Counties	1 8	1 3½
A	Clydebank	Scotland	1 8	1 3½
A	Coalville ..	Mid. Counties	1 8	1 3½
B₁	Colchester ..	E. Counties	1 5½	1 1½
A	Colne ..	N.W. Counties	1 8	1 3½
B₁	Colwyn Bay	N.W. Counties	1 5½	1 1½
A	Consett ..	N.E. Coast	1 8	1 3½
B₁	Conway ..	N.W. Counties	1 5½	1 1½
A	Coventry ..	Mid. Counties	1 8	1 3½
A₂	Crewe ..	N.W. Counties	1 6½	1 2
A₂	Cumberland	.....	1 6½	1 2
A	DARLINGTON	N.E. Coast	1 8	1 3½
A	Darwen ..	N.W. Counties	1 8	1 3½
B₂	Deal ..	S. Counties	1 4½	1 0½
B₁	Denbigh ..	N.W. Counties	1 5½	1 1½
A	Derby ..	Mid. Counties	1 8	1 3½
A	Dewsbury ..	Yorkshire	1 8	1 3½
B	Didcot ..	S. Counties	1 6	1 1½
A	Doncaster	Yorkshire	1 8	1 3½
C₁	Dorchester	S.W. Counties	1 4	1 0½
A	Driffield ..	Yorks	1 6½	1 2
A₂	Droitwich ..	Mid. Counties	1 6½	1 2
A₁	Dudley ..	Mid. Counties	1 7½	1 2½
A	Dundee ..	Scotland	1 8	1 3½
A	Durham ..	N.E. Coast	1 8	1 3½
B	EAST-BOURNE	S. Counties	1 6	1 1½
A	Ebbw Vale	S. Wales & M.	1 8	1 3½
A	Edinburgh	Scotland	1 8	1 3½
A	E. Glamorganshire & Monmouthshire	S. Wales & M.	1 8	1 3½
B	Exeter ..	S.W. Counties	*1 7	1 2½
B₂	Exmouth ..	S.W. Counties	1 5	1 1
B	FELIXSTOWE	E. Counties	1 6	1 1½
A₂	Filey ..	Yorks	1 6½	1 2
A	Fleetwood ..	N.W. Counties	1 8	1 3½
B₂	Folkestone ..	S. Counties	1 5	1 1
A	Frodsham ..	N.W. Counties	1 8	1 3½
B₂	Frome ..	S.W. Counties	1 4½	1 0½
A	GATESHEAD	N.E. Coast	1 8	1 3½
B₁	Gillingham	S. Counties	1 5½	1 1½
A₂	Gloucester	S.W. Counties	1 6½	1 2
A₂	Goole ..	Yorkshire	1 7	1 2½
B	Gosport ..	S. Counties	1 6	1 1½
A₂	Grantham	Mid. Counties	1 6½	1 2
A₁	Gravesend	S. Counties	1 7½	1 2½
A	Greenock ..	Scotland	*1 8	1 3½
A	Grimsby ..	Yorkshire	1 8	1 3½
B₁	Guildford ..	S. Counties	1 5½	1 1½
A	HALIFAX ..	Yorkshire	1 8	1 3½
A	Hanley ..	Mid. Counties	1 8	1 3½
A	Harrogate	Yorkshire	1 8	1 3½
A	Hartlepools	N.E. Coast	1 8	1 3½
B₂	Harwich ..	E. Counties	1 5	1 1
B₂	Hastings ..	S. Counties	1 4½	1 0½
B₁	Hatfield ..	S. Counties	1 5½	1 1½
B	Hereford ..	S. W. Counties	1 6	1 1½
B	Hertford ..	E. Counties	1 5½	1 1½
A₁	Heysham ..	N.W. Counties	1 7½	1 2½
A	Howden ..	N.E. Coast	1 8	1 3½
A	Huddersfield	Yorkshire	1 8	1 3½
A	Hull ..	Yorkshire	1 8	1 3½

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

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

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

*

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 19 0
Lias lime, per ton	2 10 0
Sacks charged extra at 1s. 9d. each and credited when returned at 1s. 6d.	
Transport hire per day:	
Cart and horse £1 3 0 *Trailer*	£0 15 0
3-ton motor lorry 3 15 0 *Steam roller*	4 5 0
Steam lorry, 5-ton 4 0 0 *Water cart*	1 5 0

*

EXCAVATING and throwing out in ordinary earth not exceeding 6 ft. deep, basis price, per yd. cube	0 3 0
Exceeding 6 ft., but under 12 ft., add 30 per cent.	
In stiff clay, add 30 per cent.	
In underpinning, add 100 per cent.	
In rock, including blasting, add 225 per cent.	
If basketed out, add 80 per cent. to 150 per cent.	
Headings, including timbering, add 400 per cent.	
RETURN, fill, and ram, ordinary earth, per yd.	£0 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. 4½d. per hour*; TIMBERMAN, *1s. 6d. per hour*; BRICKLAYER, *1s. 9½d. per hour*; PLUMBER, *1s. 9½d. per hour*; WATCHMAN, *7s. 6d. per shift.*

*

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.	
Lead for caulking, per cwt.	£2 5 6
Gaskin, per lb.	0 0 4½

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

*

London stocks, per M.	£4 15 0
Flettons, per M.	2 18 0
Staffordshire blue, per M.	9 10 0
Firebricks, 2½ in., per M.	11 3 0
Glazed salt, white, and ivory stretchers, per M.	24 10 0
DO. *headers, per M.*	24 0 0
Colours, extra, per M.	5 10 0
Seconds, less, per M.	1 0 0
Cement and sand, see "Excavator" above.	
Lime, grey stone, per ton	2 17 0
Mixed lime mortar, per yd.	1 6 0
Damp course, in rolls of 4½ in., per roll	0 2 6
DO. *9 in. per roll*	0 4 9
DO. *14 in. per roll*	0 7 6
DO. *18 in. per roll*	0 9 6
BRICKWORK in stone lime mortar, Flettons or equal, per rod	£33 0 0
DO. in cement do., per rod	36 0 0
DO. in stocks, add 25 per cent. per rod.	
DO. in blues, add 100 per cent. per rod.	
DO. circular on plan, add 12½ per cent. per rod.	
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, ¾ in., per yd.	0 8 6
DO. SKIRTING, 6 in.	0 0 11
BREEZE PARTITION BLOCKS, set in cement, 1½ in. per yd. sup.	0 5 3
DO. DO. 3 in.	0 6 6
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. 9½d. per hour*; DO. *fixer*, *1s. 10½d. per hour*; LABOURER, *1s. 4½d. per hour*; SCAFFOLDER, *1s. 5½d. per hour.*

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Portland Stone:	
Whilbed, 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.	

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HOISTING and etting 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. 9½d. per hour*; TILER, *1s. 9½d. per hour*; SCAFFOLDER, *1s. 5½d. per hour*; LABOURER, *1s. 4½d. per hour.*

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

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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

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

*

Timber, average prices at Docks, London Standard Scandinavian, etc. (equal to 2nds):	
7 × 3, per std.	£20 0 0
11 × 4, per std.	30 0 0
Memel or Equal. Slightly less than foregoing.	
Flooring, P.E., 1 in., per sq.	£1 5 0
DO. *T. and G., 1 in., per sq.*	1 5 0
Planed boards, 1 in. × 11 in., per std.	30 0 0
Wainscot oak, per ft. sup. of 1 in.	0 1 6
Mahogany, Honduras, per ft. sup. of 1 in.	0 1 4
DO. *Cuba, per ft. sup. of 1 in.*	0 2 6
DO., *African, per ft. sup.*	0 1 3
Teak, per ft. sup. of 1 in.	0 1 6
DO., *ft. cube*	0 15 0

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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 segmenta 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, 1¼ 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, 1⅜ 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 1¼ in. and risers 1 in., tongued and grooved including fir carriages, per ft. sup.	0	2	6
DEAL wall strings, 1¼ 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
1¼ 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
1¼ in. beaded cupboard fronts, moulded and square, per ft. sup.	0	2	9
TEAK grooved draining boards, 1¼ 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	19	0	0
DO., *galvd., per ton*	20	0	0
Corrugated sheets, galvd., per ton	20	0	0
Driving screws, galvd., per grs.	0	1	10
Washers, galvd., per grs.	0	1	1
Bolts and nuts, per cwt. and up	1	18	0

*

MILD STEEL in trusses, etc., erected, per ton	25	10	0
DO., in small sections as reinforcement, per ton	16	10	0
DO., in compounds, per ton	17	0	0
DO., in bar or rod reinforcement, per ton	20	0	0
WROT-IRON in chimney bars, etc., including building in, per cwt.	2	0	0
DO., in light railings and balusters, per cwt.	2	5	0
FIXING only corrugated sheeting, including washers and driving screws, per yd.	0	2	0

PLUMBER

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

*

Lead, milled sheet, per cwt.	£1	13	6
DO. *drawn pipes, per cwt.*	1	14	0
DO. *soil pipe, per cwt.*	1	17	0
DO. *scrap, per cwt.*	1	5	6
Copper, sheet, per lb.	0	1	9
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.	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. 1¼ 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.* 4½*d. per hour.*

*

Chalk lime, per ton	£2	17	0
Hair, per cwt.	1	15	0
Sand and cement see "Excavator," etc., above.			
Lime putty, per cwt.	£0	2	9
Hair mortar, per yd.	1	7	0
Fine stuff, per yd.	1	14	0
Sawn laths, per bdl.	0	2	9
Keene's cement, per ton	5	15	0
Sirapite, per ton	3	10	0
DO. *fine, per ton*	3	18	0
Plaster, per ton	3	0	0
DO. *per ton*	3	12	6
DO. *fine, per ton*	5	12	0
Thistle plaster, per ton	3	9	0
Lath nails, per lb.	0	0	4

*

LATHING with sawn laths, per yd.	0	1	7
METAL LATHING, per yd.	0	2	3
FLOATING in Cement and Sand, 1 to 3, for tiling or woodblock, ⅜ in., per yd.	0	2	4
DO. vertical, per yd.	0	2	7
RENDER, on brickwork, 1 to 3, per yd.	0	2	7
RENDER in Portland and set in fine stuff, per yd.	0	3	3
RENDER, float, and set, trowelled, per yd.	0	2	9
RENDER and set in Sirapite, per yd.	0	2	5
DO. in Thistle plaster, per yd.	0	2	5
EXTRA, if on but not including lathing, any of foregoing, per yd.	0	0	5
EXTRA, if on ceilings, per yd.	0	0	5
ANGLES, rounded Keene's on Portland, per ft. lin.	0	0	6
PLAIN CORNICES, in plaster. per inch girth. including dubbing out, etc., per ft. lin.	0	0	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.* 8½*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	7
Polished plate, British ¼ in., up to 2 ft. sup. per ft.	0	1	6
DO. *4 ft. sup.* "	0	2	9
DO. *6 ft. sup.* "	0	3	0
DO. *20 ft. sup.* "	0	3	7
DO. *45 ft. sup.* "	0	3	9
DO. *65 ft. sup.* "	0	3	11
DO. *100 ft. sup.* "	0	4	4
Rough plate, ¼ in., per ft.	0	0	6½
DO. *½ 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.* 8½*d. per hour ;* LABOURER, 1*s.* 4½*d. per hour ;* FRENCH POLISHER, 1*s.* 9*d. per hour ;* PAPERHANGER, 1*s.* 8½*d. per hour.*

*

Genuine white lead, per cwt.	£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	14	0
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 ¾ in. thick, in plain colour, per yd. sup.	0	7	0
DO., ½ in. thick, suitable for domestic work, unpolished, per yd.	0	6	6
Metal casements for wood frames, domestic sizes, per ft. sup.	0	1	6
DO., *in metal frames, per ft. sup.*	0	1	9
HANGING only metal casement in, but not including wood frames, each	0	2	10
BUILDING in metal casement frames, per ft. sup.	0	0	7

Waterproofing compounds for cement.
Add about 75 per cent. to 100 per cent. to the cost of cement used.

PLYWOOD, per ft. sup.

Thickness	1/12 in.			¼ in.			⅜ in.			½ 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	8½	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	—	—	—	—	—