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A TRIUMPH FOR STEEL

THE modern tendency in the design of nearly anything lies in the direction of simplification. We love smooth and shining surfaces. We love lines, planes, masses; the impressiveness of bulk; the tenuous line of speed, and all suggestion of effortless movement.

Our concrete highways that sweep across the pretty countryside like the tracks of stars or the tracings of almighty compasses are white, smooth surfaces, and along them moves a swift procession of shiny cars, complicated masses of small machinery hidden behind smooth, slick surfaces of painted steel. We are dominated by this aspect of matter, and in our designing we force the hard-resisting materials of construction into the appearance of the things we worship. As our roads are smooth and straight, so when they pass over the rivers and chasms we require that their movement across space shall be unchecked and wholly imperturbable. Our bridges cease to be monuments placed between bank and bank, because the roadway, endless across town and country, has ceased to compete with the river—it passes over in its flight. No questions of construction or material can set aside the dominance of this idea, this force which moves us, and makes us want to design as we do. Time was when argument raged over the ethics of construction. Should steel stand naked and unashamed? Was beauty the natural outcome of rational engineering? A thing well done, by nature beautifully done? Where does this stand today beside the necessity of bridging the gap swiftly, smoothly, and without fuss? It seems to us that the chief merit of the final design for Lambeth Bridge, in which Sir Reginald Blomfield is prominently concerned, lies in the appearance of ease with which it shoots across the river. His earlier design was a composite structure of steel and concrete, with elliptical arches, and it failed to qualify for permanence for reasons of cost and construction. Its successor is built of steel with stone piers and cut-waters, and the segmental arches spring low from the water in long leaps across the river. This bridge, which is now to be built, has a good chance of being successful, and if only the little stone that remains in the form of peculiar piers that look like book-rests could be abolished or still further modified, we might feel that it was modern in the sense which we have tried to convey earlier in this article.

The long, low arches seem to spring swiftly from point to point under the huge swing of the roadway, which nothing in the bridge disturbs or punctuates, and in the same way the covering of sheet steel that protects the face of the constructional steelwork pleases us by reason of its smoothness. Its horizontal lines echo the line of the roadway, and its smooth steel plates offer no resistance to the idea of movement.

It would be interesting to compare this design with Waterloo Bridge and the ill-fated Hungerford Bridge. The first quite definitely belongs to another age. It is a series of small arches bound by the line of the roadway into a magnificent series that seems, if we think of the bridge in terms of movement at all, to march triumphantly across the river. It is Roman and monumental, a thing of ponderous stones built up from the base of the stream. The second, a foolish work, moves uncomprehendingly to its preordained buffer in Charing Cross station, rising out of the water with all the ungainliness of a Margate tripper standing ankle-deep in the sea with his trousers rolled up his legs (showing his construction!). And then this last, this affair of steel and concrete or whatever you will—for it really does not so much matter what it is made of so long as it is swift and strong, and effortless in its motion over the river—in what terms can we describe it other than those that bespeak speed and flight? We shall watch with interest the construction of this bridge, for it is going to change the whole aspect of the river at this point, shifting the centre just a little westward and a few yards farther up the stream. The old bridge was small and decrepit, and gathered round it an atmosphere of long-forgotten days, which the new bridge will finally dispel when it sweeps away the collection of barges that lie on the mud by the side of Millbank.

What is to be done with the traffic that it will bring into the Horseferry Road is a matter hardly germane to this inquiry, and yet none the less important from the ever-present aspect of traffic control. There is bound to be an extension westward of commercial development, and yet to anybody familiar with the hinterland of the Embankment on the Victoria side of the river, the construction of a wide bridge will either flood a district of narrow streets and inadequate outlets with more traffic than it can hold, or else it will suffer the fate of Southwark Bridge and become more ornamental than useful.

The new bridge will give that district something to be proud of, something to live up to; it will become one of the "lights" to the acrostic of Pimlico; the others are the campanile of Westminster Cathedral rising out of the distance to the north, and, closer at hand, the new building for Imperial Chemical Industries. With these as stimulants London can hardly disgrace itself.

NEWS AND TOPICS

I HEAR that extensive repairs have become necessary to the stonework of the famous portico at University College, Gower Street, which was designed by William Wilkins. This is not surprising when it is considered that the work has stood without repair for a century. The college has attained to the distinction of a national monument, if only for the design of the portico and the unique external staircase in the podium. Therefore it is only right that the neglect complained of by Professor Lethaby should be remedied. Wilkins, scholar as he was, nevertheless fell into the error of using iron cramps to connect the large stones in the cornice and frieze. This is curious, because about this time, 1828, Sir John Soane was retrieving a similar error at the Bank of England. To a certain extent the effects of corrosion were anticipated by Wilkins, and a few iron dowels were encased with light copper. The main trouble is connected with the iron rusting, where the water percolates, and dislodging large pieces of the otherwise excellent Portland stone. A close view of the upper works of the portico reveals details which for delicacy rival the finest work of the Alexandrian period in Greece. Professor Richardson has made an investigation of the defects and the work of reparation is in his charge. I understand that special precautions are being taken to protect the carved foliage of the Corinthian caps from further decay by the judicious use of asphalt.

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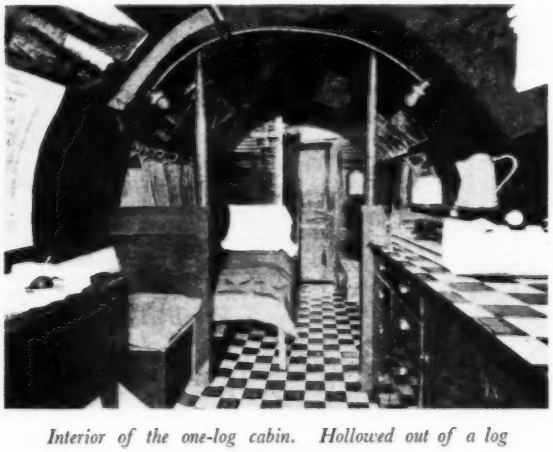
Impressed by the immense size of the Douglas fir-trees in the North-west, a man decided to build a house in a log cut from one of them, and take it back East to show his friends that the trees were just as large as he said. Going into the forest near his home, he cut a fir-tree that was 311 ft. high and more than 9 ft. in diameter. The tree was so large that he had to take a log out about 20 ft. from the butt in order to get one 8 ft. in diameter, which was as large as he would be permitted to travel with on some highways. The tree yielded nine more logs besides the one used, each 22 ft. long, and contained in all some 50,000 board feet of lumber, or about two carloads. The log itself, if it had been sawn into boards, would have produced 6,580 board feet of high-grade lumber, nearly all heart-wood—enough to build a four-room cottage.



Interior of the one-log cabin. Hollowed out of a log 8 ft. in diameter, this wandering home is completely equipped for housekeeping, with breakfast nook, cupboard, wardrobe, folding-beds, electric lights, and oil stove.

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The log home is named "Columbus," for by counting the annual rings of growth it was discovered that the tree was 434 years old when cut in 1926, "born" the year Columbus discovered America! By the time the first settlers moved into Pennsylvania, this Douglas fir-tree had attained a diameter of 5 ft. and was still growing. When the Declaration of Independence was signed in Philadelphia, the tree was 284 years of age. In 1863, when the Civil War was in progress, this tree had become a forest giant, and was 371 years old. It took the owner and two other men five weeks to hollow out the log. First, they bored a 2-in. hole through the centre. Then they used a blow torch and burned this hole to a diameter of 4 ft. They were then able to use wedges and chip the heart-wood out in chunks. When they got near the thin sap-wood ring at the edge, they finished the job with adzes, smoothing as they worked. The log is 16 ft. long and 8 ft. in diameter, contains a two-room apartment, and is mounted on a truck and trailer. The interior is completely equipped for housekeeping, with a built-in breakfast nook, cupboard, and wardrobe. Two beds fold up against the wall, and there are electric lights and an oil stove for cooking and heating.

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Those architects who are joining in the tour to Ireland that has been organized by the Garden Cities and Town Planning Association will be glad to hear that, in addition to the receptions by the Minister of Public Health and by municipalities, an opportunity is to be afforded of visiting Bantry House at Bantry. This is a mansion, little known to the general public, that is of an exceedingly fine Italian type, and fortunately escaped destruction during the troubled times of the Irish Civil War. In it will be found one of the finest private collections of tapestries in the world. These include examples of Gobelin, Beauvais, and other tapestries, which were brought over from Paris by Lord Bantry after the sack of the Tuileries. Of special interest are the mantelpieces that at one time belonged to the Empress Marie Antoinette.

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Mr. F. Mears, the Edinburgh architect, who has been so active in organizing the movement for the Preservation of Rural Scotland, together with Mr. Carus Wilson, have designed an unusual memorial to the famous missionary and African explorer, Dr. David Livingstone. The house in which he was born in Blantyre is already being restored, and the first floor is being opened up into what will be known as the "Livingstone Gallery." Here will be placed a series of sculpture tableaux illustrating his life's work. These will be placed in the recesses used in bedrooms in Scotland for "box-beds." The figures are made in reinforced concrete, and will be shown under artificial lighting, which will enhance the dramatic effect. The tableaux are being designed and made by Mr. C. Pilkington Jackson, and coloured by Mr. Campbell Mackie, of Glasgow. Another feature of this national memorial is the acquisition of ten acres of land, so as to form a beauty spot of open space amid the factories on the banks of the Clyde.

The design for the new Lambeth Bridge. The piers are of stone and the spans of steel. Sir Reginald Blomfield and Mr. C. Topham Forrest, architects. Mr. George Humphreys, engineer.

The plight of Edinburgh is serious, for there is a lack of active social leadership, and many of its principal citizens have left for work elsewhere. One sign of this is the shortage of literary societies, with the exception of the Scottish Verse Speaking Association. There has been a decline, too, in the artistic work exhibited at the Society of Scottish Artists at the Royal Scottish Academy. The University receives only £2,000 from the municipality—a small sum compared with contributions given by English cities.

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But the most serious problem of all is the existence of bad slums in the old town. The part of Edinburgh that surrounds the "Royal Nile," including the High Street and Canongate, has been called with reason the worst slum in Europe. Mr. F. C. Mears, who has been the inspiration of the newly-formed Council for the Preservation of Rural Scotland and who, in co-operation with Professor Patrick Geddes, has been re-planning Jerusalem, made a great effort some time ago to persuade Edinburgh citizens of the need to re-plan the festering courts of Auld Reekie. A few gardens have been planted and Ramsay Gardens has been erected on the Castle Hill, but little else has been done. The noble squares erected by the imagination of Adam, which prompted George IV to describe Edinburgh as "a city of gentlemen, living in palaces," are being converted by the speculative builder into flats and offices. Even the Burns Monument is used as a toolshed. There has, indeed, been a decay of the metropolitan spirit of the capital of Scotland, showing itself in art, literature, and architecture.

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More and more in America colour is being used in architecture, especially on the Pacific Coast. In Hollywood colours are used freely on buildings that show Egyptian, Moorish, and Greek influence in their design. At San Francisco a building was recently subjected to flood-light of various colours. For a week or more the whole building looked at night like a mass of green against a blue sky, and the deeply-sloping roof was turned into a triangle of rain. The new shops that are being built along Sheridan Road in Chicago are a string of colours. Even along the Atlantic Coast colour is being added to the upper stories in the form of friezes. I am told by one man who has recently visited America that the time is not far distant when American cities will vie with the rainbow both by day and by night!

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The design for the new Lambeth Bridge which appears on this page is of more than ordinary interest, particularly at the present time. Comparatively few people can have expected that this structure should be of steel, since in recent years architects have come far too much to think of concrete as the only structural material; this courageous plunge back into what is really, of course, tradition (or at least more so than concrete), should give a considerable fillip to the steel industry, not by the amount of steel actually used, which is, in terms of national output almost a negligible quantity, but by virtue of the fact that it proves that one or two leading architects and engineers are beginning to regard steel, once again, as a material with high æsthetic, as well as structural, qualities. This fact has long been realized in Germany and Northern Europe generally, and has been effectively, if tentatively, used; nor is America blind to the possibilities, as some of her bridges and factories show; and, late as usual, Britain is coming up to scratch.

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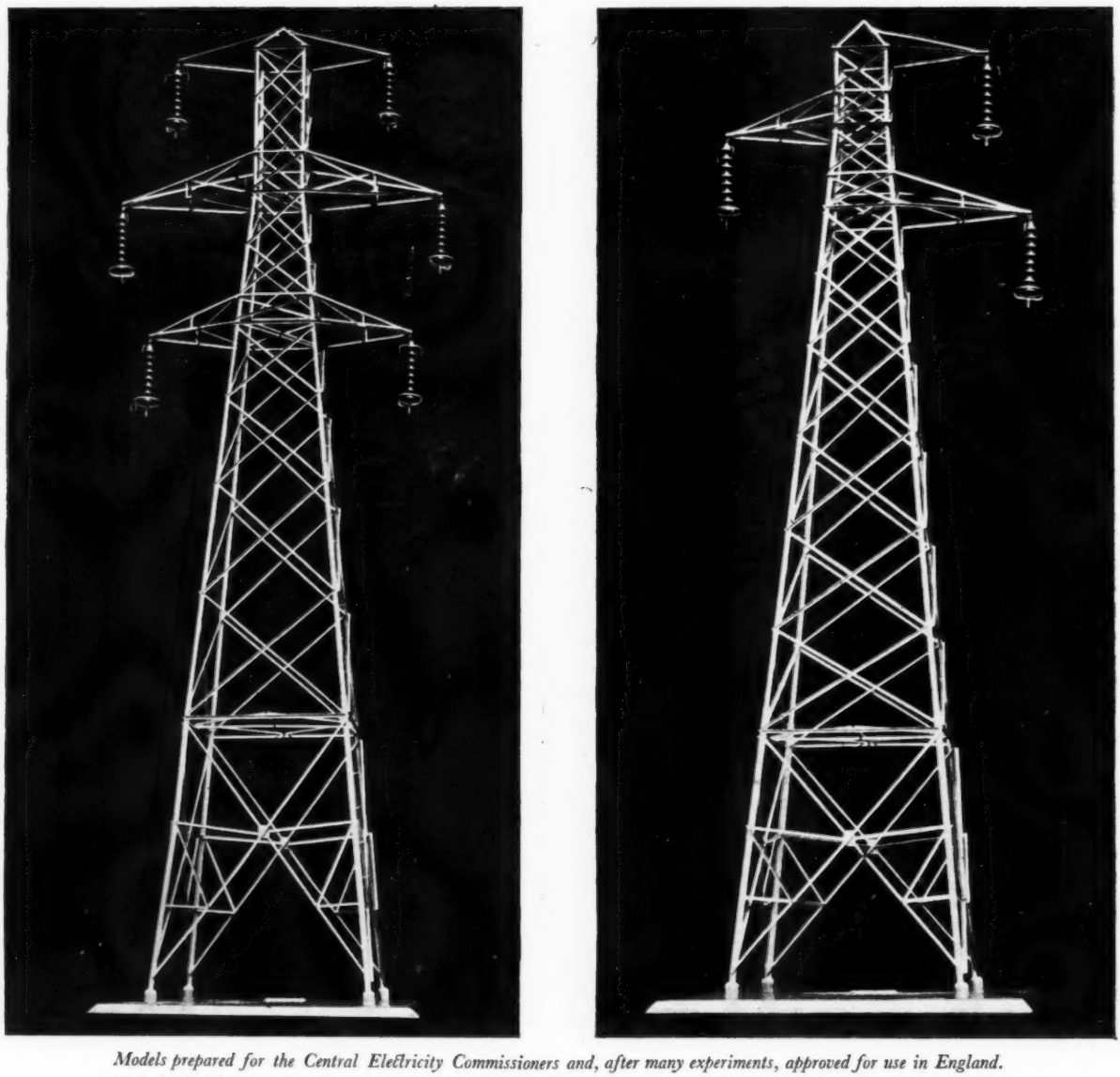
Time was, of course, when iron and steel took their proper place in the world of structures. During the early part of last century some admirable work was done in these materials, and there is evidence that even as late as 1880 people did *try* to turn out good designs. Ruskin put a very effective stop to all that when he condemned the use of steel, and everybody took him at his word, including those who felt compelled to use what they took for granted was not a "nice" material, and, consequently, never troubled about appearances or "truth" or anything else. But perhaps the rest has been of value, because now we can start afresh in the light of greater scientific knowledge, more efficient machinery, and, with freedom of thought, settle down to "design in steel."

ASTRAGAL

ELECTRICITY IN THE LANDSCAPE

[BY S. ROWLAND PIERCE]

THE distribution of electrical power, both for domestic and for commercial uses, is fast becoming a matter of vital importance to the nation; and it is for architects a double necessity to ensure that it is accomplished without crude ugliness; otherwise it may be argued that it is really unnecessary to establish such a society as that for the protection of rural England—a society which should, presumably, have vital necessities and the provision of them as much at heart as a sentimental preservation of half-timber and thatch. It would seem a useless procedure for the C.P.R.E. to spend much time upon a discussion which would recommend as a conclusion the removal of all overhead conductors, with the implied enforced placing of the cables underground; for economic examination shows that it cannot be done. The capital charges would be increased by the adoption of such a policy to the extent of three times, ending in uneconomic distribution charges to the consumer; it therefore becomes evident, if we are



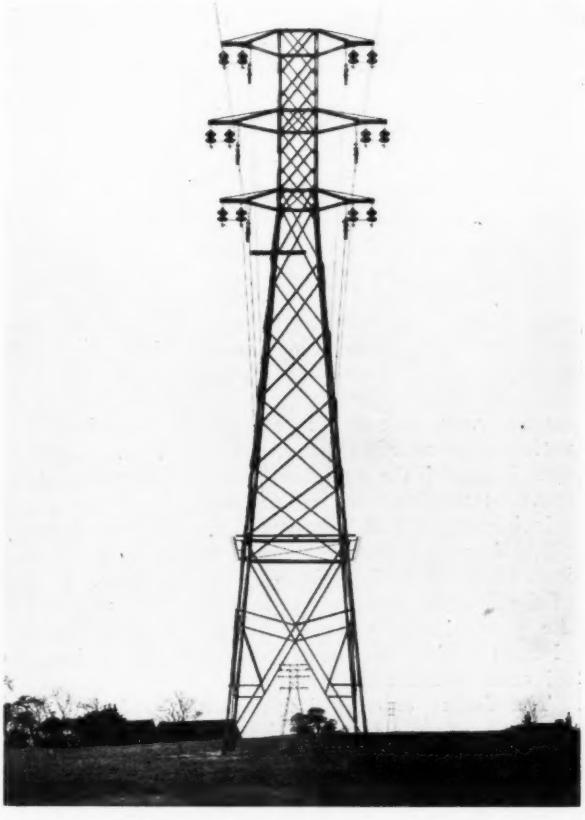
Models prepared for the Central Electricity Commissioners and, after many experiments, approved for use in England. As is inevitable in small-scale models, all the members appear to be too large; this heaviness would disappear in a full-size tower. The double-circuit tower (left) is a particularly elegant piece of design and appears to be functionally suitable in every way. The upper part of the single-circuit tower (right) is not so good; the depths of the unequal cable-arm attachments could with advantage be revised, but any arrangement of asymmetrical arms presents a very difficult problem.

agreed that increased health and national economy are to be considered, that the æsthetic problem of overhead distribution must be met. In one case this is already an accomplished procedure, for the Central Electricity Board have been in consultation with Sir Reginald Blomfield on the subject of the transmission towers for the new "grid."

We are moderns living in modern times, times which are as utterly different from those of a hundred years ago as the latter were from those of Saxon England; and while we may wish, with all regard, to preserve as pleasant and historical documents the survivals of the past, it cannot be that we insist on the perpetuation of out-of-date methods into the future. Unless we admit to deliberate hypocrisy, it is impossible to find in the picturesque lumber of the past solutions of the new and urgent problems of the present and future; though if we are true moderns, with as scientific an interest in the past as in the future, we must not be above using all that the past has handed down to us, provided always that it is truly applicable and usefully suitable. For example, it may be *possible* to design a transmission tower on the lines adopted for the imitation trees used as observation posts in the last war; or to evolve a tower constructed of half-timber and brick-nogging, with a special treillage for ivy; but what hoots of mirth and shouts of outraged propriety would ascend if such were the officially approved method for facing and solving this problem in a direct and beautiful manner.

It is often admitted (but how often in practice forgotten) that a new need must be specially designed for, after due examination of all the past may be able to contribute. In the case of a transmission tower a design may be evolved which co-ordinates the greatest economy with the maximum of structural efficiency; examination, acute analysis and criticism, not only by the engineer and the actuary, but by the architect, can then determine in what manner it may be improved in appearance or emplacement so that it may not disturb unduly either the amenities or the beauties of the countryside; it is possible that such improvements can be made, but if the beautifying alterations are found to interfere with either efficiency or economy, then they have been added as "frillings," and not as an integral part of the solution of the entire problem.

In the design of light steel transmission towers the factors are many and complex. Those connected with economy involve not only the actual amount and distribution of the steel used, but also the area of land occupied by the spread of the feet and foundations of the tower, for which rent must be paid. The problem of upkeep is still one that is insoluble in an economic manner, and will continue to be so until science can provide us with a cheap rustless steel or a non-ferrous alloy with the strength of steel. The best designs so far produced are the result of strict balance between the various factors; it is, for example, more economical in rent to have the main members vertical, but this leads to much heavier steel for these members to withstand



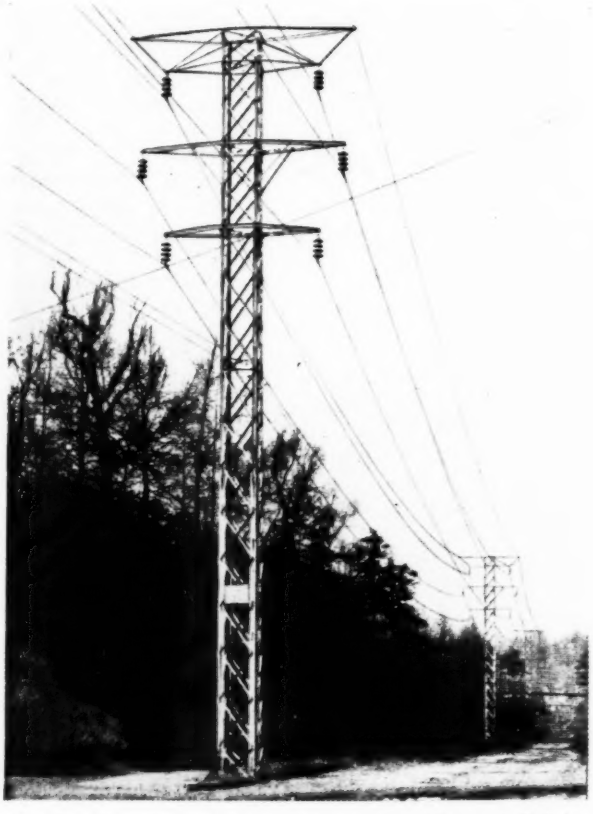
A tower on the Halesowen to Stourport line. An example, closely approximating to the Central Electricity Commissioners' approved design, though somewhat less successful at the top; there is also a slight tendency towards a dynamic uneasiness at the base, due to the angles of the bracing struts. It compares, however, very favourably with the American examples.

A 110,000-volt tower for the Southern Power Company, U.S.A. This tower, here shown in the construction yard under test, is hardly satisfactory by reason of the top-heavy appearance due to excessive height of the upper parallel portion; the cable arms appear to be too heavy in section and lack bracing which would help to lighten these members.

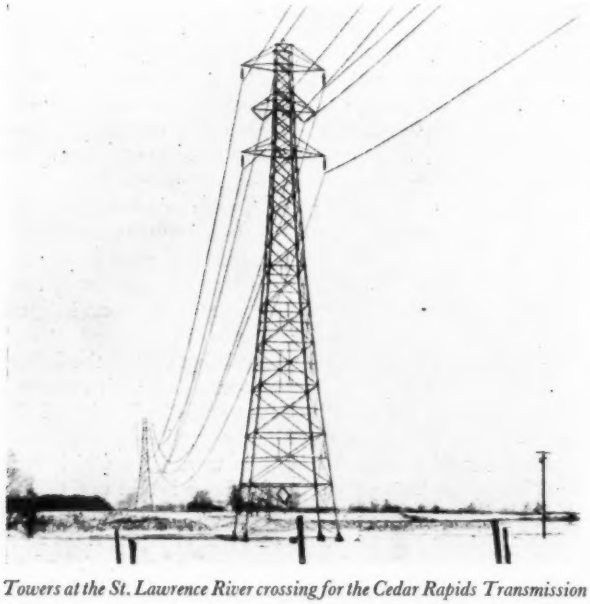
the torsional stresses; if, on the other hand, the feet are spread inordinately and the main members thereby lightened to the minimum, more and heavier bracing is required, though this increase in weight of the bracing is less than an increase of weight in the main members as they approach verticality.

Generally, four supports only are brought down to the ground for the sake of economy in foundation work, though in some cases a triangular plan has been tried for the lighter types of tower, but with increased difficulty in the fixing of the cable arms. An additional factor is resolved by the spread of the supporting points to a distance wide enough to permit the passage of ploughs and other agricultural machines where standard towers are unavoidably placed in the midst of open land. The form now becoming usual is, therefore, a tapered steel lattice on four supports with the necessary cable arms triangulated from various stages near its summit. An improvement in appearance is made if the main supporting members are slightly curved throughout the entire height somewhat on the principle of the Eiffel Tower, though this refinement involves increased cost, and does not therefore commend itself as a completely satisfactory improvement. In some of the English examples the horizontal spiked guard for the prevention of unauthorized ascent of the tower is placed too high and the proportions would be improved if it could be lowered a stage.

The factors entering into structural calculations for these towers are concerned with the weights of the cables and insulators, together with a considerable addition for ice and snow, and with wind pressure on both the cables and the tower itself; while it is necessary to ensure that the braces are everywhere sufficiently strong to prevent torsion and buckling in the event of one or more of the cables breaking in any combination of eccentricity. Towers for " dead-ends " (at the entry to distributing stations, etc.) and for the points of change in direction of the cable line, and for extra long spans crossing valleys or rivers, must all be specially designed. That these considerations, properly dealt with, lead to the light gracefulness of the best of the examples illustrated is a further condemnation of the application of worn-out principles to new problems.



66,000-volt towers for the Central Georgia Power Company, U.S.A., showing the clumsy appearance of the parallel lattice type, having undue heaviness of the principal members. In all cases the projection of the cable arms is governed by the amount of oscillation of the cable due to wind ; increased length of insulators will, therefore, require longer arms.



Towers at the St. Lawrence River crossing for the Cedar Rapids Transmission Company. An example showing the adoption of the " Eiffel principle " for extra long spans, involving correspondingly high towers ; a type having good proportions, lightness, and great strength both in fact and appearance.

The towers evolved in America are the outcome of an extended experience in such work, and they often arrive at an efficiency and an appearance of airy lightness that is only equalled, if not surpassed, by some of the recent designs produced in this country in response to the growing demand.

The towers favoured by the Central Electricity Commissioners are 70 ft. in height with a spread of 16 ft. at the base, the average cable spans being 900 ft. These dimensions are, on the average, standard, though special spans of 2,000 to 5,000 ft. are sometimes used with proportionate increase in the size and weight of the towers.

The British towers recently designed are things of beauty in lightness of structure, in general form, and in fitness for purpose; and with judicial placing under proper advice and control should do no more to produce eyesores in our countryside than do the hideous bungaloid growths or smoke-belching stacks that are, it would seem, more nearly concerned with architecture, and which produce comments, not infrequently heard, upon the inadequacy of the profession as a national asset of prevention as well as cure for ugliness.

AN ARCHITECT'S NIGHTMARE

[BY G. K. CHESTERTON]

No more valuable warning has been put into words in our time than that expressed in the terms and even in the title of *England and the Octopus*. For the struggle to save the country (which does not mean merely the countryside) from the modern anarchy of machinery run mad, is very rightly represented as the struggle between a man and a monster. There is an incident of an islander wrestling with an octopus in Victor Hugo's romance about the Toilers of the Sea; and there was a time when Englishmen boasted all the qualities necessary to Toilers of the Sea. But in this matter the French have in the long run been more successful; possibly through not being ashamed of being Toilers of the Land. The islander is having special difficulties with his sea-monster. The wrestling of England and the Octopus has reached that very interesting stage when men begin to speculate whether it will be all Octopus and no England.

Everything begins with philosophy, and it must always be remembered that many modern people do not look at a struggle between a man and a monster with the simple sentiments of those watching the struggle of St. George and the Dragon. A great many modern modifications of that tradition, a great many emendations of those sentiments exist today, and it can be more or less summarized or simplified under the same image. There are cautious scientific statisticians who elaborately calculate that the arms of the octopus are eight, and the arms of the man are, on the other hand, two. From this they clearly prove that the victory of the former is ultimately inevitable, all such issues being decided by resources and lines of communication. There are earnest evolutionists who maintain that the man, by kicking earnestly and energetically, will eventually grow more arms and legs; and, indeed, in due course actually turn into an octopus, so that all cause of intellectual difference will be at an end. There are revolutionary artists and visionaries who consider that man as an animal must be out of date, because his anatomy has been studied at the academy schools. They feel that an octopus is in truth a more beautiful and even lovable form, because it looks more like a portrait of a lady at the Post-Futurist Exhibition. There are sociologists and social reformers who think an octopus is more of a model for mankind than a man is, because it is more centralized in one head, and its arms or branches are all of the same length. There are humanitarians who think it is cruel for human beings to kill octopods, but not cruel for octopods to kill human beings, for they do not like human beings very much, and that is why they are called humanitarians. There are, in short, all sorts of points of view from which men may dispute what would once have never been disputed; that man is a thing worth saving, and especially worth saving from monstrous and sprawling powers of destruction, whether natural or artificial. It is equally possible to dispute what is equally normal, that the historic life of man is worth saving from monstrous and sprawling tendencies or accumulations. But even that simple figure of speech will serve at the start to define the issue, and dispose beforehand of all those who really mean, even when they do not know what they mean, that it is either hopeless or needless to save what is human from what is inhuman.

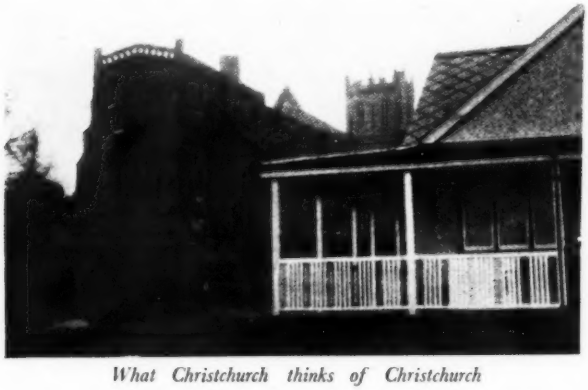
Mr. Clough Williams-Ellis, in the present volume, deals with the matter in very practical detail, but he is fully conscious of this general philosophy of design. I should not agree with all his conclusions, but I do not think there would be any debate about his first principles, and the important point is that he does not underrate the first principles. He fully realizes, for instance, the curious element of contradiction that runs through the whole of this problem. It is most notable, to my mind, in the amazing overturn or reversal of philosophy, touching many of these matters, which has taken place in the two or three generations of the industrial change. The first industrialists were optimists; at least this was true of the captains of industry, who were the only people then allowed to count in industry. In a rapture of radiant hope and happiness they proceeded to build the most horrible and repulsive buildings and cities to be seen outside hell. Consequently the next generation of industrialists were pessimists, and doubtless, in judging their heresy, the shape of their front doors and chimneypots must be pleaded at the Throne of Mercy in mitigation of their fate. But all they did, or do, consisted of going about groaning and saying that they hated all this horrid clockwork as much as anybody, but that it was impossible to put back the clock. When they had said this about four hundred and fifteen

England and the Octopus. By Clough Williams-Ellis. Geoffrey Bles, Suffolk Street, Pall Mall. 5s.

In the Vale of Llangollen. Left, the view and, right, what looks at it. [*From* England and the Octopus.]

times it was not altogether unnatural that some Socialists and other ruffians intimated that it was possible to smash the clock. But what seems to me curious and interesting is the complete supineness and inertia with which the vast mass of people allowed themselves first of all to slide into optimism and then to slide into pessimism. They accepted two totally opposite philosophies with the same resignation —and with the same result. Optimism was a reason for sticking the hideous chimney up, and pessimism was a reason for not trying to pull it down.

And the author picks out this odd point about contradiction in another matter where far too few people have seen it. As I have remarked elsewhere, the escape from the town is the extension of the town. Empires have been expanded because people were proud of them; but this empire is expanded by people who are intelligent enough to be ashamed of it; by people who are running away from



What Christchurch thinks of Christchurch Priory. [*From* England and the Octopus.]

New buildings on the Bath Road. [*From* England and the Octopus.]

it. Mr. Williams-Ellis has put this paradox aptly and clearly. "As the Joneses fly from the town, so does the country fly from the pink bungalow that they have perched so hopefully on its eligible site. The true countryman will know that the area is infected—the Joneses have brought the blight of their town or suburb with them—and in all probability they and their home will be followed by an incursion of like-minded people similarly housed, and the country will be found to have further withdrawn itself beyond the skyline in its losing retreat towards the sea." That is very good, but it is even better to be able to go on and quote the phrases that distinguish the generous spirit of the Christian tradition from the mere superciliousness of the æsthete, who is so much of a prig that he can seldom avoid being also a snob. "To do nothing but revile those who thus spoil the country with their nauseous little buildings, or merely to laugh darkly at their pathetic failure to achieve an imagined rusticity, is beautifully easy. But it is unjust, cynical and lazy—as though you were to curse a stricken family because in flying from its burning home it trespassed over your lawns and flower-beds. What we must try to do is both to put out the fire—that is, to make town life not merely tolerable, but attractive—and also to show how one may in very truth genuinely escape to and live in the real country without offence and without thereby trampling underfoot and annihilating the very things that are so justly desired and so valiantly sought."

The problem thus excellently stated is not of course easy of solution for anybody, but it seems to me at the start that it suggests an excellent example of that impossible notion known as putting back the clock, an operation, by the way, that everybody performs in connection with a scheme for getting a little more daylight. I do not mean, and certainly Mr. Williams-Ellis does not mean, that it is desirable to reproduce any particular state of things from any particular period of the past. But I do mean that it is necessary to assert again most fixedly and emphatically one of the fundamental ideas of the past, which has become almost completely confused and ignored in the present. And that is the idea that town and country are two totally different things; that each should have its completely different dignity; and that the peasant is one sort of person and the burgher another. Expressed in terms of architecture, this sane and noble conception could not be better defined than by saying that a city should have a wall. A suburb is the opposite of a wall.

The architectural nightmare, well described in these pages, which presents itself in some new seaside towns (if they can be called towns) and elsewhere on the edges of urban expansion, arises from the architects having entirely forgotten all that was implied in this ancient symbol of the wall. Houses stand at every conceivable and inconceivable angle, in a patchwork that will not even make a pattern. But they do so because they are conceived *neither* in the spirit of a free peasantry nor in the compact and serried spirit of a walled city. Farmhouses in a real countryside can stand at any angle at which the farmers choose to put them; but then farmhouses are surrounded by farms. It is of their very nature to lie deep in their own entrenchments of fields and orchards, to be sheltered by timber or softened by grass and grain. Houses built in towns have always had a more orderly and militant quality, as of a ranked army; and when the town is really a town it is not felt as a loss of freedom by the townsmen, for there is a difference between the liberties of a city and the liberty of the open land. But scraps of a town scattered as by an explosion are neither one thing nor the other. And if there be one first principle I should demand, at the beginning of the reform, it is that a thing should always be either one thing or the other. In the application of that reform, as I have hinted, there might be differences among reformers; and I should not always follow Mr. Williams-Ellis in his remarks about garden cities and other experiments of the day. But I am less disposed to write of these differences, which would, indeed, require a separate essay, than to thank him for so spiritedly sounding the alarm, for ringing a tocsin to the townsmen which should be heard over the whole countryside.

The extensions at the back of Lygon Cottage, where the showrooms of the Russell Workshops are situated. By Leslie Mansfield.

MR. GORDON RUSSELL AND COTSWOLD CRAFTSMANSHIP

[BY JOHN GLOAG]

MANY and dolorous are the complaints of those who mourn the passing of craftsmanship. They join issue with the critics of modern industry, the dealers in hate whose urgent concerns are the misinterpretation of the present and the intensive glorification of the past. For the edification of all these bitter folk, one might parody A. P. Herbert's lines about the eternal misery of the farmer, and say of the craftsman:

> The craftsman will never be happy again,
> His heart is right down in his boots,
> For horrid machines and industrial means
> Are rotting his craft at its roots. . . .

The chief result of this incoherent body of criticism, this cult of contempt for industrial production and machine-craft, has been the making of what may be called "hermit" craftsmen; men and women who have "taken up" a craft, acquired a degree of skill in its practice, and who have thereafter proclaimed their proud unconcern with the twentieth century. "We are in it, but not of it!" is the slogan into which repugnance for their own time is condensed. Selecting some dear fancied golden age from the past—the Middle Ages according to the Belloc-Chesterton revelation being the favourite period—and fortified by their chosen historical illusions, they set about their work with uncommercial, but entirely selfish eagerness. So the hermit craftsmen make fine things in wood and metal, fashioning simple furniture of the costly kind, weaving textiles in the most expensive way, dyeing cloth—producing with their own skilled hands and by time-hallowed methods articles that only a few very wealthy people can possibly afford to buy. Naturally there are exceptions. Some of the hermits are mere inept dabblers, ardently craftful, but incapable of anything but the ruination of material. Some, again, are not untouched by business wisdom, and honestly try to fix a selling price based on cost rather than on whim, although the process of arriving at the cost of their articles often defeats them. But it is not unusual to hear some such fervent comment as: "Thank God we know nothing of business—we are *craftsmen*!" And so the work they do leaves their own time largely unaffected, and their enthusiasms are sterile because they ignore contemporary life.

Any classification of the consuming public is difficult, but four sections are sufficiently clear to be labelled: 1: the rich; 2: the discriminating poor; 3: the hire purchasers; and 4: the very poor. The needs of sections 1, 3, and 4 are met by all the resources of scientific industrial civilization; but the professional classes, the artists and people of culture, who represent the discriminating poor, want something better than industry in its present state of development can give. Being poor, this class cannot acquire the work of the hermit craftsmen; such work when it is good (and even when it is indifferent) is beyond the means of its members. As a class it has educational influence; as a buying power it is negligible, therefore it cannot launch the demand for saner and more agreeable products from modern industry, for commerce is not always interested in betterment unless it promises bigger sales. And the craftsmen, the people who are concerned with the preservation of handicraft, scorn industry and do not attempt to influence machine-craft, or experiment with the best elements of industrial production.

But there are a few far-seeing men who have realized that craftsmanship cannot survive in a little hot-house as a tender, precious plant. Unless it can flower in the open, and survive green and fresh under the smoke-cloud of modern industry, it will perish utterly.

One of the most illuminating examples of modern craftsmanship—in the true sense of the word "modern"—is the work of Gordon Russell. One branch of his work, his cabinet making, has been described in this JOURNAL by that gifted teacher and craftsman, Mr. Percy A. Wells.

Above, the Lane Shop, which houses the upholsterers and polishers. The building is curved to conform to the line of the lane that runs across the area occupied by the workshops and the "Lygon Arms" hotel, garages, and gardens. By Leslie Mansfield. Below, to the right is the power-house of the Russell Workshops (By Leslie Mansfield), and to the left are the garages of the "Lygon Arms," with servants' quarters above.

Top and centre, one of the cottages in the Russell Workshops housing scheme. By Leslie Mansfield. Bottom, a row of cottages in the Russell Workshops housing scheme. By C. E. Bateman.

Above, one of the joinery shops, with a store-room above. This adjoins the great barn at the back of the Lygon Cottage garden. By Leslie Mansfield. Below, the gardener's cottage, behind the "Lygon Arms" garden, and adjoining the Russell Workshops. By C. E. Bateman.

But the influence and aims of the Russell Workshops at Broadway, Worcestershire, go far beyond the designing and making of furniture. The development of those workshops must have vivid interest for every one who cares for the future of craftsmanship, for Gordon Russell is creating something in Broadway that foreshadows an enlightened alliance between handicraft and machine-craft. He has never surrounded his work with a glittering integument of vague aspirations. Good workmanship and fitness have been the first concerns, and in the cabinet-making shops and the smiths' shop they form the basic principles of all production. But every skilled man in the Russell Workshops enjoys the incomparable advantage of being engaged always in the making of sound, honest, well-designed things. He is never called upon to make clever imitations of old things; he is never ordered to make shoddy things. Machinery is used intelligently to save labour that wastes a skilled man's time.

Those who contend that machinery must always be a vile, degrading thing should spend ten minutes in the power-house, where a huge gas engine with a rich, soothing song generates electricity for the Russell Workshops and for the lighting of the " Lygon Arms " Hotel. The engine, with all its cased parts painted scarlet, and its working parts polished, is mounted on a raised platform of hard, black engineering tiles. The walls of the engine-house are painted warm grey, and its doors are faced with polished aluminium-faced plywood. The floor is tiled in black. The fuse and switchboard gleams with polished metal; the inspection tunnel and the storage place for lubricants are behind a narrow polished door of aluminium-faced plywood, and the whole place is full of daylight and clean colour. On the floor above the engine-room are seven cooling tanks, and the building is fitted with louvers to ensure a current of air. The tank for crude oil is also on this floor, and the rest of the space is used for timber storage. This power-house was built by the building department of the Russell Workshops, to the design of Leslie Mansfield.

The growth and character of that building department illustrate the vigour and breadth of Gordon Russell's influence. The building staff was formed originally to undertake the restoration and enlargement of the " Lygon Arms " Hotel in Broadway, a fine mid-seventeenth-century building, owned by Mr. S. B. Russell and his sons, Gordon Russell and D. G. S. Russell. When this work was completed, and the gracious old building had modern additions in good Cotswold stone, cut and shaped easily and naturally in the old tradition of the Cotswolds, it was found that a singularly fine instrument had been created: a staff of men animated by the spirit that ran through the Russell Workshops, invigorated by the same ideas of good workmanship, having the same informed respect for tradition; a staff that made it possible for Gordon Russell to consider a practical extension of his conception of real modern craftsmanship in stone.

The composition of the building department gave it the distinction of character that comes from collective inspiration. The masons and joiners were all local craftsmen who understood Cotswold building with that warm, deep human knowledge that comes from local and lifelong familiarity with a craft. The stone building tradition of

Gordon Russell's house at Kingcombe, Chipping Campden. By Leslie Mansfield.

the Cotswolds is essentially an expressive human tradition, formed by craftsmen and gloriously independent of drawing-boards. The houses seem to grow in the ground; they crouch comfortably rather than stand, and the impression they give of low length is strengthened by the placing of the windows, which nestle up into a gable as part of it, while dormers sit low on the eaves as if seeking the support of the wall below. The chimneys rise out of the ridge with a comfortable suggestion of supporting the roof. The rubble walling, with worked quoins; the small windows with their stout, chamfered mullions—such details of texture and form are lost when those who build are out of touch with the local tradition. The most agreeable design can be almost ruined in building by cut-pointing in walls, the use of the bolster on sawn stone, and other apparently trivial matters.

Building for contract was done by the department, and a number of houses were built in the district; and presently

Above, the house built on the side of the hill overlooking Campden.
Below, a garage at Tower Close, Snowshill. By Leslie Mansfield.

Above, a view of the house from the garden. Below, the building that accommodates a laundry on the ground floor, and above, Gordon Russell's studio, with a garage opening on to the road. By Leslie Mansfield.

the extension of the Russell Workshops began. Cottages for the craftsmen were built round two sides of a big field that lay behind the main section of the shops, adjoining part of the garden of the " Lygon Arms " Hotel. This solved the perplexing housing problem that an increasing staff was providing. Then came the enlargement of the shops; the replanning of the whole production area, and section by section the new workshops are being built.

The general layout of the shops has been largely the work of Leslie Mansfield. The development of the factory has been accommodated to existing buildings, and a sequence of production attained, so that stores, machine and cabinet shops, repair shops, upholstery and polishing shops, the smiths', the packing and dispatch department, are falling into place, gradually, for this great, orderly scheme is still being worked out.

A three-hundred-year-old farmhouse facing the broad village street, named Lygon Cottage, houses the things in wood and metal that are made in the workshops. A garden flanked by thatched barns stretches behind the house, linking it with the great barn that is half store, half packing shed, where the lorries are loaded. All the new building, the adaptations and extensions, have been carried out with sympathetic appreciation for tradition, an appreciation too lucid to degenerate into mere copying. For Gordon Russell, master craftsman and designer, the work of the past is an inspiration, not a tyrannical model.

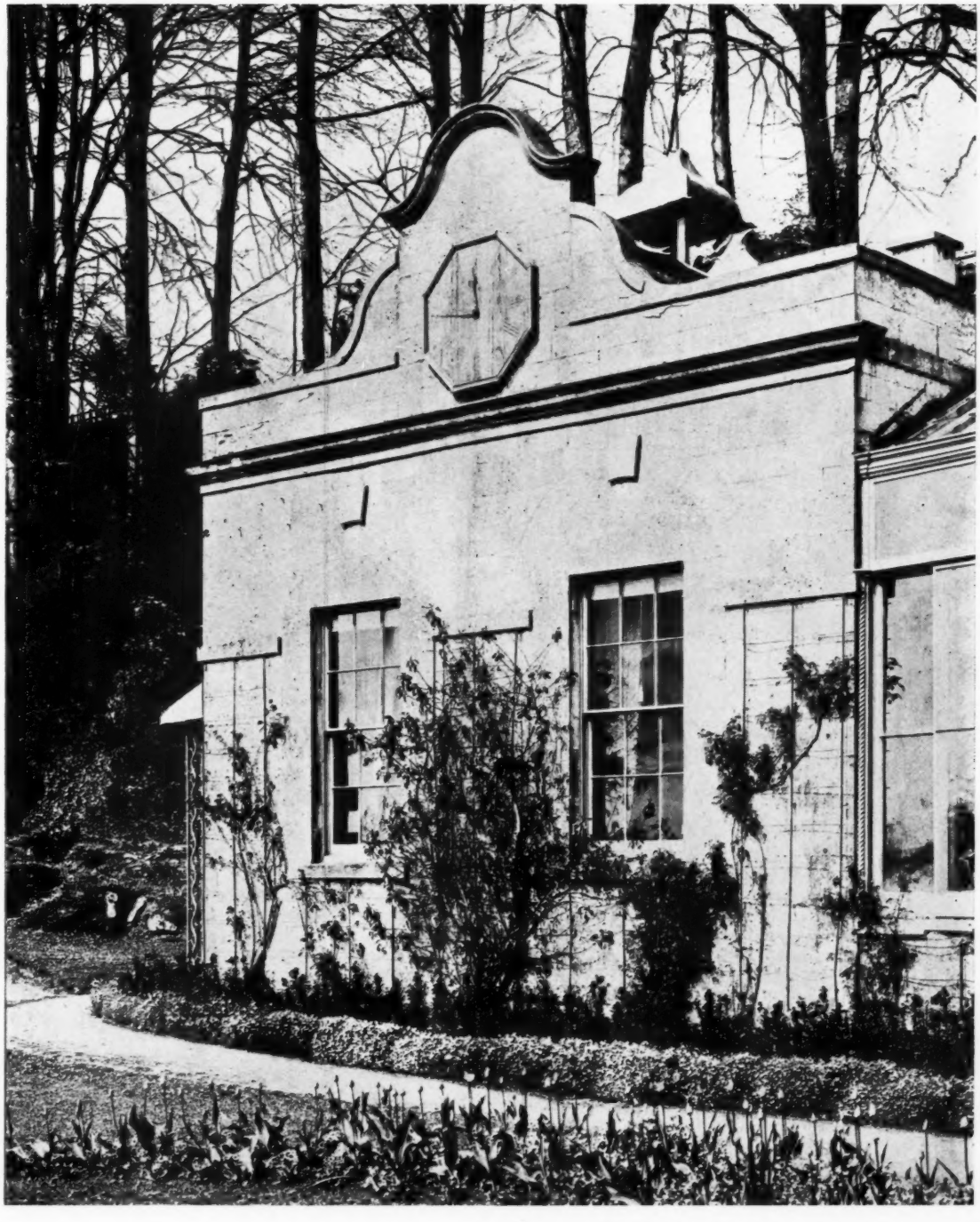
He has gone to the root of the Cotswold tradition, whether he works in wood or stone. He begins where the seventeenth century stopped. He is developing in furniture the character that might have come to English chairs and tables and cabinets if there had been no Restoration. His work suggests that the eighteenth century did not exist; for it has been ignored in this swift reaching back to a time when simple certitudes of construction and the honest graces of fitness were gloriously sufficient.

Fortunately for his generation, Gordon Russell is not one of the hermit craftsmen. He is making a great experiment; a wonderfully courageous experiment, and a manifestly successful one; and it is nothing less than an attempt to remould industry nearer to the heart's desire. He is proving that intelligent industry, which is the pooling of the gifts of handicraft and machine-craft, need not be a messy abomination, fouling the air, and sprawling planlessly to the ruin of fair countrysides. He is gathering at Broadway in his shops skilled men who are keen on their work, who represent so many crafts, that should some sudden violence of war wreck and depopulate the cities of this country and wholly disorganize civilization, at Broadway there would be the nucleus of a fresh civilization, for the Russell Workshops could become, with but a little effort of adaptation, a self-supporting community.

The would-be saviours of craftsmanship who talk and write about methods of arresting decay, have spoken often and movingly about a revival of village crafts. They have faith in villages. But they have no faith in the possibilities of modern industrial organization. Their imagination collapses gently when it is suggested that a real craftsman could get far more satisfying and beautiful things out of industry than a mere book-keeping business man can ever get, and that most craft revivals are lifeless from their inception, because they are the hobbies of a few well-meaning people, who are not concerned with making the particular crafts they have selected for patronage do anything useful or perform any service that affects every-day twentieth-century life.

Gordon Russell proclaims no " movement," he preaches no " revival." He is organizing work, and designing and making furniture, and building houses and garages and shops, for all these things to be used. He is providing goods and services for the people of his own time. He appreciates the scale of contemporary needs, and the craftsmanship of the Russell Workshops is alive, for it is concerned with work for living people and draws no nourishment from prejudice.

The summer-house. The lintel was made by pouring concrete into shutters lined with specially woven osier hurdles.



ENGLISH PRECEDENT

26 *Gatcombe, Minchinhampton, in the Cotswolds, was built about the year 1770, but no record of the architect has come down to us. Mr. Edward Sheppard, who caused it to be built, was in close touch with Bath, so it is possible that the younger Wood may have had to do with the designs, though on the other hand, it may be the result of pattern books and the talent of a local mason. In this stone district, which affords some of the best building weather-stone from the upper oolite formation in England, masonry has always been of a high order. The orangery, here illustrated, was afterwards altered and filled in to serve as a justice room; many such rooms are to be found in the district.*—[THOMAS FALCONER.]

Hatchford End. By H. S. Goodhart-Rendel.

TAKING OFF QUANTITIES: iii

[BY ARTHUR J. WILLIS]

BUILDER'S WORK IN CUTTING AWAY AND MAKING GOOD AFTER SUB-CONTRACTORS

How to provide for builder's work in cutting away and making good after sub-contractors and for the sundry requirements that are always made in connection with engineer's work has always been a difficult problem. It would appear that this work can be dealt with in a bill of quantities in three ways:

1. A wide covering clause to comply with which the builder must do everything necessary as and when it may occur.
2. Measurement, either definite or provisional.
3. The insertion of a provisional sum.

In the case of ordinary domestic work the first method is quite suitable and usually adopted. A builder knows by experience what cutting away and making good he will have to do, and can without very much risk estimate a lump sum to cover the work. There are, however, limits to such a method, and in works of alteration (even in comparatively small contracts) expensive items may occur which the builder cannot foresee. Where central heating is being installed in an old house there may be expensive floor or wall finishings or elaborate gilded cornices to make good. The run of the pipes is often not settled when the builder tenders, and he cannot therefore be fairly expected to estimate the value of his work. The same principle applies in large new works where special finishings have to be dealt with. A builder, except in small domestic work, cannot by looking at drawings estimate fairly what work he will be called on to do by the heating engineer, electrician, or other specialist.

How, then, can a price be arrived at to be included in the tender? The surveyor's duty is to measure. But is he in any better position to do this than the builder is to estimate? To take heating as an example, if the runs of the pipes are settled he can see more or less where they will pass through floors and walls. But how can he say whether the plastering will have been done when a certain hole is cut, or whether the hole will be cut and made good before the plasterer comes along? This is not entirely a matter of the builder's organization, and depends very largely on the promptness of both architect and sub-contractor in settling details. Can the surveyor say whether a given pipe will go through a skirting or just miss it, whether a hole can be left in a concrete floor or whether it will be cut afterwards (a very different proposition)? In the case of electrical work the position of such things as switch-boards, fuse-boxes, etc., is often not determined till the order for the work is given. There are, moreover, in large contracts many forms of engineering which a surveyor cannot be expected to be expert in, such as refrigerating plant, cooking apparatus, sterilizing plant, automatic sprinklers, fire hydrants, etc. He cannot therefore know until details are available what sort of builder's work is required.

In all these cases the scheme is often in a very hazy state when tenders are obtained for the building contract. Supposing the surveyor measures the builder's work to the best of his ability, his calculations will probably be mostly upset when the work comes to be carried out, owing to the fact that the scheme was not fully developed. It is only natural that both architect and engineer will not go into every detail until they know that the scheme will go forward. Anything can be measured or described if it is sufficiently detailed, but the surveyor cannot be expected to foresee how a scheme will develop. Items are certain to crop up which could not be foreseen. It even often happens that one estimate is obtained on which to base the bill of quantities, and after the builder's tender is accepted other estimates for the sub-

contractor's work are obtained which may involve quite a different scheme.

Where there is likely to be work which is a substantial part of the building, it is advisable to measure as a provisional quantity, so as to obtain a schedule price for the work. Such items as pipe trenches, boiler bases, engine beds, lift pits, etc., should be provided for in this way, their adjustment when executed being fairly straightforward.

The fundamental difficulty on a large contract is that an engineering scheme cannot be prepared until the architect's $\frac{1}{8}$ in. scale drawings are ready, and that as soon as they are the bills of quantities must usually be prepared at once. The surveyor may get a draft scheme for the engineering work before his bills are ready. He can no doubt measure from this what he thinks will be necessary in consultation with the engineer, but unforeseen items will always occur to a greater or lesser extent. Moreover, alterations during the progress of the works are more common and more difficult to avoid in work of this nature than in any other part of the contract work. The contractor will send in day-work sheets which will probably also cover items in the contract, and it will be impossible to sort out the contract items from the non-contract ones. This is only natural as the foreman probably tells two bricklayers or two plasterers to spend the day doing what some sub-contractor makes necessary. These men cannot be expected to sort out on their time sheets what is and what is not contract work, nor even to set down in detail every little job they did, so that the foreman can do so.

The insertion of a provisional sum has an obvious disadvantage in that it is difficult to estimate, reduces the element of competition between contractors, and involves very careful supervision of its expenditure by the clerk of works. It is, however, in many cases the only practical solution. Where it is adopted it is essential that the clerk of works should check day-work sheets as to time and material very carefully, so that unfair advantage is not taken of an opportunity for day-work charges.

VARIATION ACCOUNTS

POSITION OF THE SURVEYOR. The adjusting of variations on a building contract is an important function of the quantity surveyor which he must carry out with strict impartiality and justice, having in mind that his duty is to interpret the terms of the contract fairly as between the parties. When a surveyor prepares a bill of quantities he is usually appointed by the building owner or by his agent, the architect, and in the preparation of the quantities he is himself the building owner's agent. On the signature of the contract, however, he is placed in a dual position:

1. Independent and impartial as between the parties to adjust variations under the contract.

2. The technical representative of the building owner in settling the account with the contractor.

It often happens therefore that, like Poo-Bah, he must argue with himself. The view he must take is that the contractor's representative having the technical knowledge can usually formulate his own claims (though the surveyor is bound to give the contractor such special knowledge as he may have by having prepared the quantities), whereas he himself must formulate those of the building owner whose technical representative he is. Contractor's representative and surveyor can then argue before the surveyor in his other capacity of independent surveyor under the contract. The position it will be seen is a difficult one, in that, while doing his best for the building owner, the surveyor must not depart from strict impartiality in his decisions.

SCOPE OF AUTHORITY. The surveyor must restrict himself to the powers given him under the contract. He can only measure and value authorized variations, and by allowing anything unauthorized he would be acting *ultra vires*. Any special claim which the contractor may submit which is not covered by the contract must be referred to the architect, not settled by the surveyor on his own responsibility. The surveyor, therefore, must study his "terms of reference" as detailed in the contract, as these must be his authority for everything he does.

REPRESENTATIVE OF CONTRACTOR. Though he may be appointed by the contract to adjust variations, the surveyor should always give the contractor an opportunity of measuring with him if he wishes. Such offer should be made in writing to prevent any misunderstanding afterwards. If the contractor leaves the measuring to the surveyor alone, he implies that he will accept his measurements, though no surveyor should refuse to give such explanation of any measurement as may be reasonably required. Naturally, the surveyor cannot be expected to go through every detail of his measurements. If the contractor wants this, he should measure with the surveyor and book his dimensions for comparison with the measured bill.

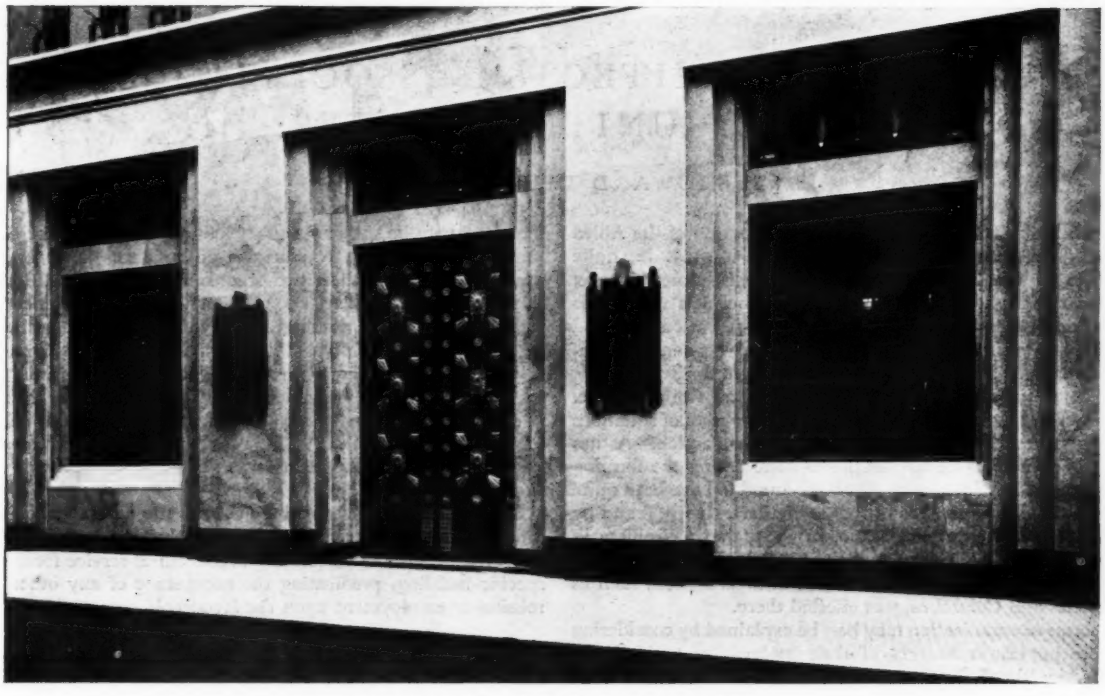
REMEASUREMENT. The complete remeasurement of the contract work is not authorized by the usual form of contract, and a surveyor should therefore get the consent of both parties before proceeding in such a way. Variations may be so extensive that a point will be reached where it is much simpler, fairer to both parties, and less expensive in surveyor's fees to the building owner to have the whole building remeasured as executed. Though the contractor may lose something from "full" quantities, he has an opportunity of asking for measurement of many small unforeseen items which, being in themselves small, he would not otherwise have raised.

DIVISION INTO ITEMS. The first step in taking up the adjustment of variations should be to obtain from the contractor a list of such items as he wants dealt with. The contractor can be generally trusted to raise all points of extras, but is not always so careful over omissions. The surveyor will be able from periodical visits to the works during their progress to make a list of items which occur to him, and he should also obtain from the architect a list of items of which he knows. Theoretically, the lists of contractor and architect should be complete, but this is rarely so, and the surveyor has to examine the building and find for himself anything that may have been overlooked by either. Having these lists before him, he should then pick out the substantial items which will each be dealt with separately. The architect or building owner does not want to know merely that there is an extra or saving of £1,000 on a contract, they want to know what this figure represents. The variations must, therefore, be classified in such a way as to show what is required. The big items should be dealt with first, then perhaps some of the smaller ones can be grouped together till only a few odd things are left, which may perhaps form a "Sundries" item, further explanation of which can be given if so required. It is always advisable to split up items rather than collect them, because it is easy from a summary to collect together several items for the purposes of a statement of account, whereas it is more difficult to divide them. At the same time the number of items should not be unnecessarily large.

WHEN TO MEASURE VARIATIONS. The ideal time to measure variations is just sufficiently long before the building is occupied to enable all measurements to be completed before occupation, as it is always more difficult to get about a building when in use. However, it is often necessary for various reasons to measure in the earlier stages of the contract. It may be more convenient in the organization of the surveyor's work, or it may be necessary because something to be measured will be covered up and not afterwards accessible. It may be possible to measure certain variations from detailed drawings. If this is done, the measurements must be compared with the work as built, as alterations from detailed drawings are often made by an architect when visiting the site, as a result of something that occurs to him during his inspection.

"OMIT" OR "ADD" HEADINGS. Care must be taken that all dimensions are so written that they can be worked up by a second person without having to refer to the taker-off. Especially must omissions and additions be kept distinct. The best way is to make it a rule to write across the top left-hand corner of each page "Omit" or "Add" as the case may be, underlined. If a change has to be made in the middle of a page from omissions to additions, the "Add" or "Omit" should be written in a similar way.

ITEM HEADINGS. If a clear-cut list of items can be prepared beforehand, each item should be given a number and the dimensions of each headed, e.g. "Item No. 1, Windows." Before



The British Bank of South America, São Paulo, Brazil. The main entrance and the windows of the banking hall. By Prentice and Floderer.

starting the dimensions of another item a similar heading should be written. An index should be made to the dimension book setting out the items and the pages on which they are measured. There will then be no confusion of items by the worker-up. If items cannot be decided beforehand, the taker-off should at once, on finishing measuring, go back over his dimensions, while they are fresh in his mind, and make the necessary division into items.

PROCEDURE. The same rules of measurement should be followed in variations as would be in the preparation of a bill. Descriptions in many cases can be cut down so long as items of omission can easily be identified in the contract bill and items of addition are described sufficiently fully for pricing purposes. When measuring on the building, a saving of time will generally be effected by leaving omissions to be measured in the office, sufficient notes being taken of what is to be omitted. It will save a good deal of trouble if reference is made to the prices in the contract before measuring. For instance, in joinery fittings, the tops, bottoms, sides, divisions may all be separate in the original bill, even though the same thickness, but bracketed together and priced at the same rate by the contractor. In measuring variations there would be no objection to measuring all these together, as they would be priced at the same rate in accordance with the prices in the contract. Moreover, items that are not priced in the contract bill need not be measured at all.

PRICING. The pricing of the account should, if possible, be done by whoever measured the work, as he is acquainted with any special difficulties which the contractor may have had to contend with. In any case the taker-off should have an opportunity of looking through the account to see that the items have been billed as he intended and generally to check the arrangement of the bills. The account should be priced by the surveyor and sent to the contractor for examination and not sent to him for pricing. When the contractor has examined the priced account he will then arrange to meet the surveyor and raise any points he may want to make. Any matters on which the contractor and surveyor cannot agree, together with any special claims made by the contractor which are not within the surveyor's province, will then be referred to the architect.

APPENDIX

SECTIONS INTO WHICH THE TAKING-OFF OF A BILL OF QUANTITIES CAN BE DIVIDED, IN A SUGGESTED ORDER FOR BINDING UP

Cube of building.
Spot items.
Foundations.
Brickwork.
Constructional steelwork.
Fires and vents.
Facings.
  a : brick.
  b : stone.
Floors.
  a : finishings.
  b : structure.
Roofs.
  a : finishings.
  b : structure.
Windows.
External doors.
Internal doors.
Openings and recesses (without joinery or other fitting).
Internal finishings (plaster, etc.).
Fittings.
Stairs.
Internal plumbing and hot-water supply.
Gasfitter.
Drains.
Engineering (including heating, electric lighting and bells, lifts, refrigeration, cooking plant, clocks, sprinklers, and other specialists' work of this nature).
Roads, paths, courtyards, and other work in layout of grounds.

[*Concluded*]

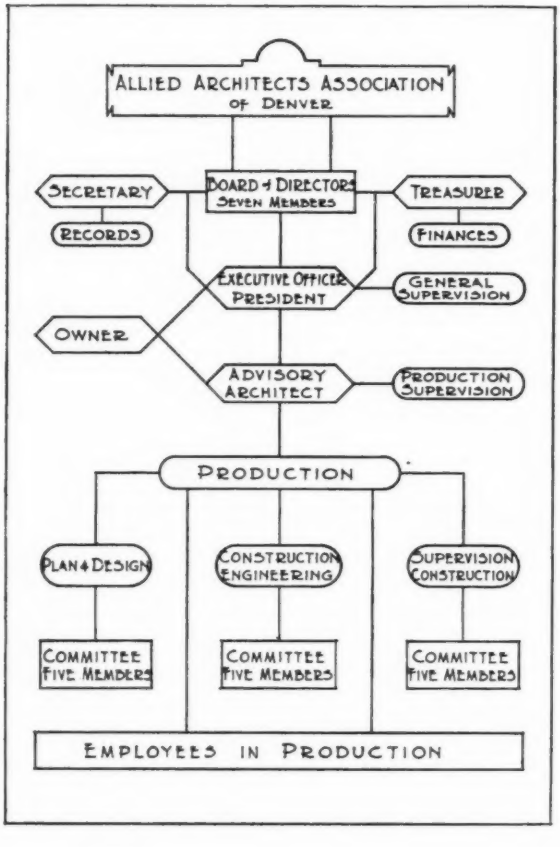
ALLIED ARCHITECTS' ASSOCIATIONS IN THE UNITED STATES: iii

[BY HOWARD DWIGHT SMITH]

FROM what has been written about the formation of the Allied Architects Association of Columbus, Ltd., it must be quite evident to the reader that the organization was formed to meet a certain definite need and to do a bit of business which was waiting to be done. In this respect its inception lacked an aspect found in many commercial or business ventures where an organization is first effected and then something is sought for it to do.

The details of the form of organization, the working code, have been largely determined by the peculiar phases of situations which presented themselves at the time of organization. As has already been noted, the circumstances surrounding the forming of the Allied in Los Angeles in 1922 were found to have been quite similar to those in Columbus in 1923. Similarly, it was found by the architects of Denver, Colorado, in 1924, that a problem in which they had become interested might be solved by co-operation and combination of efforts, and a form of organization, such as Los Angeles and Columbus, was effected there.

The forms of organization may best be explained by considering the more important features of their by-laws, as typified, for example, by the Columbus group. The Columbus group is perhaps unique in its title of Allied Architects of Columbus, Limited, since the word "Limited" is required by the State law to be attached to the title, and displayed on all signs, stationery, and documents, indicating to the public that individual financial liability is limited. The Los Angeles and Denver associations are regularly incorporated companies, and as such its members may be subject to greater financial liability for obligations incurred in the transactions of business. The funds for initial operations in these two organizations are provided by the sale of corporate stock at $100 per share. The original incorporators at Los Angeles numbered thirty-three, which number has been increased to forty. The original Denver list numbered thirty-nine. In order to provide a large fund for immediate operation with a limited membership of twenty-five, the value of single shares of partnership stock in the Columbus Allied was set at $200. The Denver by-laws contain a specific provision that the members may be levied upon by assessment to provide funds for operation.



Comparison of the stated objects of the several associations indicates that Denver, following the Columbus lead, lays stress upon the purpose of performing architectural service for a single specific building, predicating the acceptance of any other commission or employment upon the favourable vote of the majority of the members. This puts a definite restraint upon the activities and gives to the constituent members the assurance that group efforts will not be expended by the promiscuous acquisition of commissions which would encroach upon the private competitive field. The Columbus limitation is a geographical one, and the term "public building or improvement" has been construed to mean any improvement for which funds are provided from the public treasury either of the City of Columbus or the County of Franklin, in which it is situated.

The Los Angeles limitation is an implied one, for after broadly stating that its "paramount purpose is to advance the art of architecture and by professional co-operation and collaboration to secure for municipal, county, state, and national government . . . the best expression in design and construction of public buildings," it qualifies its position by the negative expression that "it is not intended that the Association shall accept or perform services for private individuals, firms or corporations." This negative expression is itself immediately qualified by the last statement of the "Objects" section of the by-laws, which hints at one unique feature of the Los Angeles Allied, which reads: "but this shall not be deemed to prevent the Association from rendering any of such services to its own members." The application of this unique feature will be referred to later, when the corollary activities of the several Allied organizations are mentioned.

Qualification for membership in the several organizations, as indicated by the phraseology of the by-laws, is placed on an equally high plane with their purposes. Los Angeles opens the way for "any architect who . . . has advanced the art and profession of architecture." Eligibility in Columbus is based upon qualifications which are required for membership to the American Institute of Architects. It is recalled that at the time the Columbus City Council requested the Columbus Chapter of the Institute to promote an agency for performing architectural service, the requirement was made that it be not limited to members of the Institute. The prestige of the Institute Chapter was such, however, that the standard of eligibility in the Columbus Allied was held on an equally high plane, and no architect who could not obtain membership in the Institute, should he so desire, need be considered as capable of furthering the objects and purposes of the Allied. It is obvious that this provision avoids political issues which might easily defeat the very purpose of the organization.

New membership is, of course, based upon election by the membership upon recommendation of the governing board. The Denver requirements recognize the State Licence law, making any licensed architect eligible; but any member of the Denver

City and County Building of Denver.
By the Allied Architects Association, Ltd.

Chapter of the Institute may become a member of the Allied without an approval vote of the membership.

Under the heading, " Duties of Members," each member is required to perform promptly and diligently all duties assigned to him by the governing body, and one of the causes of " termination of membership " is " neglect of duty or obligations to the Association," as well as " conduct that may be injurious to its interests."

Similarly, the " Privileges and Liabilities of Members " provide that interest in the financial concerns of the organization shall be equal among the members, and specific provision is made that no member, as an individual, can require any accounting or division of profits or interests. Thus is avoided the buying up of stock or the promiscuous sale of it, and no opportunity is afforded for liquidation on the part of any individual on any basis except the surrender of his original stock at its face value. The Denver by-laws add a qualifying clause to the section on liability of members, by stipulating that the corporate indebtedness shall not exceed the aggregate sum of $20,000. This is probably evidence of the desire for a tether beyond which length the membership would not suffer the management to go, thus placing a limit on possible loss to the individuals. The Columbus scheme, as has been mentioned, limits individual liability to $200, which some sceptics infer they probably would lose, but were willing to take the chance in the hope that some small good might accrue in the end by way of publicity and education of the public, even though the project itself might fail.

The actual management of the affairs of the Allied Association is vested in a governing body elected by the members. The powers of these directors or managers are practically unlimited, except for the limitation of accountability to the Association, since directors may be removed from office by a majority vote of the membership. Columbus and Denver, carrying out their policy of limitation of services to one major project, have placed the restriction upon their Boards that they may not contract for rendering services without the authority of the membership.

Provision is made for the election of a Board, usually of five members. Columbus elects for two years, with overlapping terms of two and three directors. Denver takes a constitutional precaution to ensure continuity of policy during the life of important contracts by including in its by-laws, under the section referring to the election of directors, this paragraph: " Where contracts of employment are entered into by the Association wherein provision is made for the continuance of service of the same Board of Directors for the period of the contract, such provision shall be considered as a condition precedent to the provisions of the by-laws," with the exception that directors may be removed by the membership for cause.

The exercise of the powers of the Board has included: determining policy, assigning executive work to committees of the membership, and fixing the compensation therefor, employing executive and administrative help. Uniform provision is made by all associations that members of the Board shall not receive remuneration for attendance upon any meetings, either of the Board or of the membership.

What to do with profits, if and when they might accrue as a result of Allied activities, has been the subject of various and sundry discussions. The by-laws of all the groups adopted before starting actual business operations, optimistically make provision for some disposition of anticipated profits. It is probably a fair statement to make that the individual members of the several groups have not taken part in their activities with the idea of personal profit. The amount of profit which might accrue, even on the basis of private enterprise, from a single commission would not be any great sum, and this, if divided among twenty-five, thirty or forty participants, would be of little consequence to the individuals.

Los Angeles gives entirely to the Board the disposition of profits as to time and amount, and also stipulates that the Board may " divide and apportion part of the profits among persons other than members for valuable considerations or for reasons which may be deemed sufficient." Columbus gives similar powers to its Board, except that such extra-mural disposition must have the approval of the members.

Even with this last restriction the way is left open for the possible application of profits to some worthy project in keeping with the paramount purposes of the Allied ideal. The Denver by-laws, on the other hand, make definite provision that " Profits acquired by the Association shall be divided in the month of January of each year among the members . . . after all expenses of the Association have been paid . . . and amounts not required for conducting the affairs of the Association."

The general attitude toward the disposition of profits is indicated by the fact that just prior to the re-election of the members of the Board at Columbus, whose terms had recently expired, the members had received a report from their Board which contained

the recommendation that profits accruing from current commissions be donated to one of three possible civic projects. These were: (1) endowing a scholarship at the Ohio State University; (2) endowing a civic lecture course on the arts; (3) purchase of a statue, painting or other detail to be donated to the city and used in the embellishment of the civic centre project.

To illustrate the method of operation of the Allied organizations let us consider the typical case of the Columbus City Hall. Shortly after organization the Board of Managers appointed two of its members a Committee on Contract.

The form of contract proposed by this committee and accepted by the city officials was based upon the standard form adopted by the American Institute of Architects and contains the following principal features:

(1) DESCRIPTION OF SERVICES.

"*a*: The necessary research, consultation, conferences and the preliminary services, including the preparation of preliminary studies, sketches, and estimates.

"*b*: The preparation of working drawings, including the necessary large-scale and full-size detail drawings, the sanitary, electrical, mechanical, structural, and other engineering drawings, the preparation and writing of specifications, forms of proposals, the receiving of bids, the preparation of bonds and contracts, and the filing of all documents as required by law.

"*c*: The general administration, supervision, and superintendence of the work, including the keeping of construction accounts and records, the making of construction progress reports, and the issuance of certificates authorizing payments for the work performed in the erection and construction of said building."

(2) FEE.

The agreement fixes a basic rate of 5 per cent. of the cost of the structure for general contract work, which will be done under a single contract, plus the salary of a full-time construction superintendent or clerk of works, nominated by the architects, to be in charge of the work at the site and to act as field representative, both of the city and of the architects. This basic rate was fixed at 5 per cent. on the assumption of a total construction cost of about 1,000,000 dollars. (In subsequent agreements for smaller work the basic rate has been fixed at 6 per cent.) In addition to this the contract calls for an additional fee of 2½ per cent. on the cost of all segregated or separate and independent contracts. It is customary in most parts of the United States to segregate the mechanical trades contracts, such as plumbing, heating and ventilating, electric work, and elevator installation, from the general construction contracts.

(3) PAYMENTS.

The division of the basic fee for services rendered under the different headings were agreed to be one-fifth of the rate (or 1 per cent. of the total cost) for item (*a*), one-half of the basic rate (or 2½ per cent.) for item (*b*), and three-tenths of the basic rate (or 1½ per cent.) for item (*c*). In order to provide a continuous income from the beginning of the office work, it was agreed that compensation for items (*a*) and (*b*) should be made in monthly instalments upon invoices rendered by the architects based upon actual office costs, but that the aggregate of these monthly instalments should not exceed five-sixths of the total fee due for those items (*a*) and (*b*) until all the services required under such items were completely and acceptably rendered. This provision was not burdensome to the city, since a sum large enough to cover the entire fee was required by law to be held unencumbered in the treasury, and it was quite a convenience to the new organization, particularly during the (*b*) period of preparation of contract drawings and specifications which extended over about six months.

For services rendered under item (*c*) payment is made in instalments as the construction progresses, coincident with, and proportional to, the amounts paid by the city to the several contractors on account of construction or mechanical equipment contracts.

(4) REIMBURSEMENTS.

The city has agreed to furnish or pay for all surveys of the property, giving all levels, location, and description of all encumbrances, location and description of all available public utilities such as water, gas, sewers, and electric current. It also agrees to reimburse the architects for the actual cost incurred by them or their representative while travelling in the discharge of duties in connection with the execution of the work.

(5) EXTRA SERVICES.

The contract provides for the equitable payment for additional services which may be rendered or required to make changes in drawings or specifications after definite schemes approved or decisions made, or for expense incurred due to delinquency or insolvency of the city or the contractors, or as a result of fire, or in case the project is abandoned in whole or in part.

The Board having decided to hold a competition to determine the most desirable scheme for the proposed new building, it appointed, coincident with the appointment of the Contract Committee, a Programme Committee of five members of the association, whose duty it was to hold all necessary preliminary conferences, collect all data, and do sufficient study to prepare a complete programme of requirements, which the city could agree upon and approve. Since other buildings had been proposed, which would ultimately be considered in the civic centre project, the Programme Committee included in its preliminary programme the general requirements of the group of buildings.

Based upon this programme the Board of Managers conducted an intramural competition among the twenty-five members, in two stages. The principal features of this competition were:

1: The first stage required small-scale drawings in pencil, showing possible relationships of the group of buildings and suggesting a general style of exterior expression.

2: Each of the thirteen members submitting schemes received a stipend of $200.

3: A jury consisting of Prof. Chas. St. John Chubb, head of the Department of Architecture, Ohio State University (a member of the Columbus Allied), chairman, Mr. Harvey Wiley Corbett, of New York, and Mr. Howard Van Doren Shaw, of Chicago, employed by and acting only for the Allied Associates, judged the first stage, selecting three projects for further development. All schemes submitted became the property of the Allied to be used in any way desired.

4: The second stage required the three designers selected in the first judgment to develop larger scale drawings of the city hall building only—in black line and monotone wash.

5: Each of the three finalists received $1,000 when his drawings were rendered, all drawings becoming the property of the Allied.

6: The same jury made a first choice from these three.

7: The member whose design was premiated was appointed by the board as chairman of the Committee on Design during the preparation of contract drawings, working drawings, scale and full-size models.

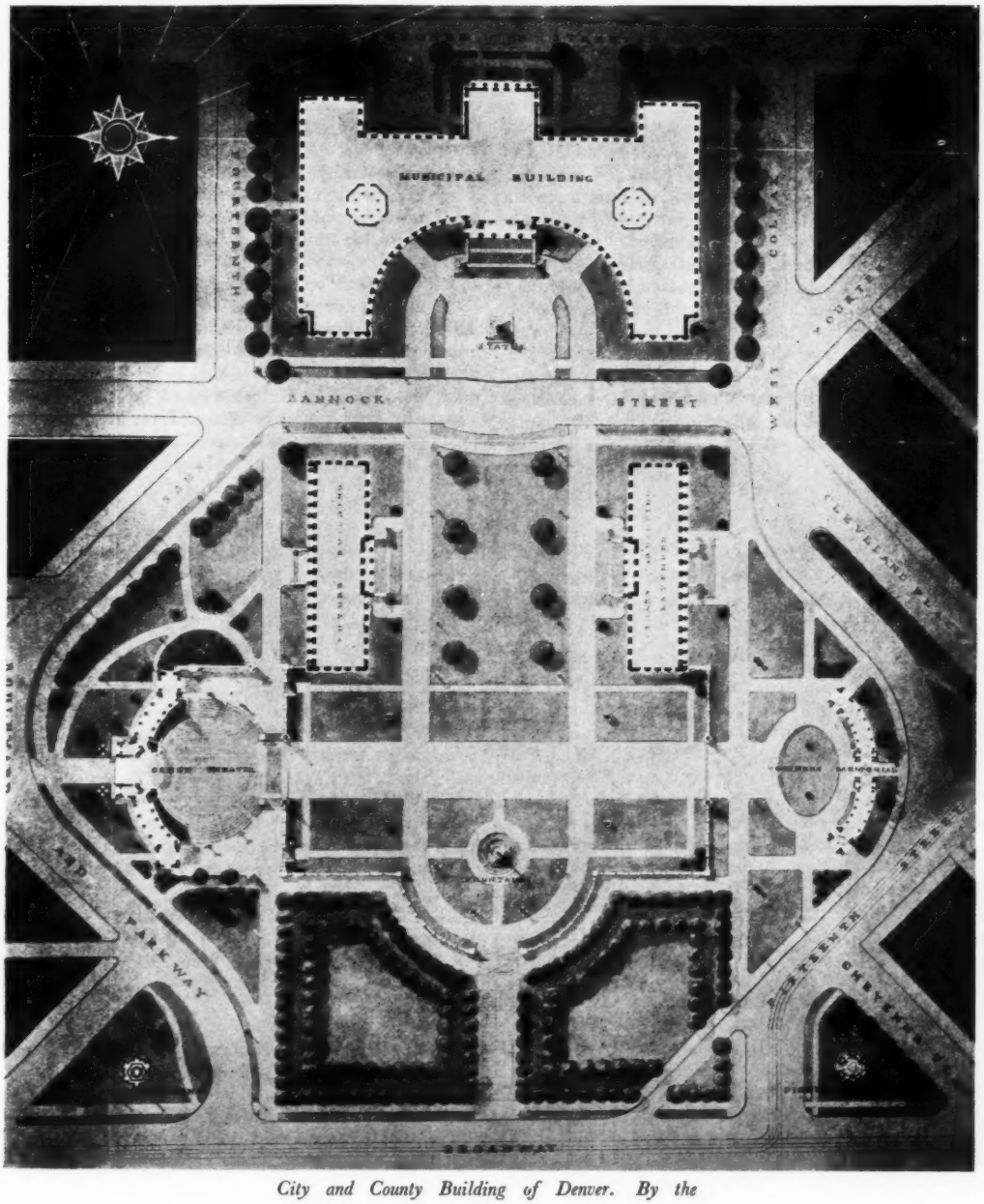
After the second stage was completed and a second scheme chosen, it was presented to the City Council as the architect's conception of the proper solution of the problem and recommended that it be adopted and approved. It will be noted that the competition did not provide the opportunity for any city officials to express opinions on the various schemes in either stage. The first and only recommendation coming from the Allied had, therefore, in the eyes of the Council and of the public as well, the strength of unanimous local support, reinforced by the prestige of having been passed upon by two outstanding members of the profession of national reputation chosen by the local architects. Herein lies the strongest point of the Allied idea, since the Council felt that it had availed itself of the best efforts of local talent without a show of partiality, and had obtained some advantage of outside expert opinion without the criticism (merited or not) which usually follows when public officials go "out of town" for professional talent. By means of the competition idea the Allied had stimulated as much local interest as if the city had conducted such a competition, and by the appointment of a single member as chairman of the Committee on Design the stimulus of individual responsibility was properly placed.

When the Council approved the scheme recommended by the

Allied, services under item (*a*) of the contract for professional services were deemed completed. The expense to the Allied up to this point was $2,600 for the first stage competition, $3,000 for the second stage, approximately $1,200 for jury expenses, and about $500 for other miscellaneous expenses of the Board and its Contract and Programme Committee. The margin of profit on this portion of the professional service rendered is influenced largely by two things; first, the number of members entering in the first stage of the competition, each of whom receives a stipend, and, secondly, the amount of executive work actually performed in meetings by the Board members, for which the by-laws debar payment.

Having had the scheme approved by Council upon presentation of the premiated design, the organization of an office force to proceed with the detailed study of building requirements, fitting the building to the demands of the departments, or vice-versa, and the preparation of working drawings and specifications, two possible methods presented themselves. First, there was the opportunity of allocating this portion of the work to the office of any member or firm of members with an established practice, remunerating that member or firm for costs of draughting, supplies, and an agreed rate of overhead expense, and charging this cost to item (*b*) of the contract for professional services. The other was the forming of an entirely new organization to perform the service. On a small commission the former method would undoubtedly be the rational procedure. On the larger commission the only marked disadvantage of the second scheme is the possibility of expensive overhead charges at the beginning and ending of the period, when actual work is in process in the draughting room, when it may be necessary to retain some expert employees for the one commission only whose time, in private practice, could easily be shared by several commissions.

[*To be continued*]



City and County Building of Denver. By the Allied Architects Association, Ltd. Plan of layout.

LAW REPORTS

ANCIENT LIGHTS DISPUTE

Barnett v. *London Co-operative Society. Chancery Division. Before Mr. Justice Clauson*

This was an action by Mr. Moses Lionel Barnett, the owner of 48 King Street, Hammersmith, London, against the London Co-operative Society, for an injunction to restrain the defendants from erecting a wall so as to cause a nuisance by the alleged obstruction of light to his ancient windows, and the consequent damage to the letting and selling value of his premises.

Defendants, by their defence, pleaded that the interference with the plaintiff's light was trivial and that the value of plaintiff's premises had in no way been affected by what they had done.

Mr. Jenkins, K.C., and Mr. Hall appeared for the plaintiff, and Mr. C. A. Bennett, K.C., and Mr. Mackay represented the defendants.

A large body of technical evidence was called on both sides, plaintiff's witnesses including Mr. Percy John Waldram, the daylight illumination specialist, and Mr. Wilfred Travers, architect.

For the defence evidence was given by Mr. Thomas Henry Smith, architect, and Mr. A. S. Ackerman, a consulting engineer.

His lordship, in the course of his judgment, said the question he had to deal with was solely the interference with the light coming to the plaintiff's living-room and kitchen. These were small rooms and on the evidence he was of opinion that there was a deprivation of light here which could not be said to be merely trivial. Here the whole thing was on a small scale and hence there was great difficulty in dealing with the matter. He was, however, convinced that the erection of the wall complained of by the plaintiff, did as a matter of fact render the rooms in question less enjoyable as to light than before. Under these circumstances he should grant the plaintiff an injunction. The defendants, however, had made substantial offers to alter the wall, and he would therefore leave over the form of the injunction for the parties to see if they could agree as to its framing. This would be without prejudice to any rights by way of an appeal. He granted the defendants a stay of execution on the terms he had mentioned.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

During a debate on the vote for his department, Mr. Chamberlain, the Minister of Health, replying to criticisms in regard to housing progress, said that although the progress under the Rural Housing Act up to March 1928, had been singularly disappointing, since then progress had been very much faster. The number of dwellings in respect of which applications for assistance had been received, which was only 1,072 up to March 1928, had increased to 1,500, that was by 50 per cent., in the succeeding three months. With regard to housing in general, month by month the number of houses completed continued to go up, as well as the number of those under construction, and that number, which was only 48,000 last January was today 59,000. He would be very much surprised if they did not get another 100,000 houses completed before the end of the year.

Mr. Chamberlain informed Mr. W. Thorne that during the year ended December 31, 1927, 100,959 houses were completed under the Housing Act of 1923, and 95,288 under the Act of 1924.

Mr. R. Young asked the Minister of Health if he could give any explanation why, out of 1,072 applications for assistance under the Housing (Rural Workers) Act, 1926, only 334, up to March 31, 1928, were promised assistance; and why, of those 334 applicants, only 220 accepted the assistance offered?

Mr. Chamberlain said that according to the returns furnished by local authorities showing progress up to March 31 last under the Act in question, assistance had been promised in respect of 334 dwellings, applications had been refused after consideration of the proposals of the local authorities in respect of 256 dwellings, and the balance, viz. 482, were presumably still under consideration at that date. Of the 334 dwellings in respect of which assistance had been promised, the position at March 31 was that work was either in progress or had been completed on 220 dwellings; in the case of the remaining 114 the work had not been commenced, but he was not aware that the assistance promised had not been accepted.

Sir W. de Frece asked the Minister whether he was aware that, in the cases of many houses whose owners were debarred from possession by the Rent Restrictions Acts, the rents received did not cover the mortgage interest; and whether he would consider the desirability of modifying the provisions of the Act in the near future so as to meet this particular hardship?

Mr. Chamberlain said that the present intention of the Government was that the Rent Restrictions Acts should be extended for one year in their present form by means of the Expiring Laws Continuance Act, and if that was done it would not be practicable to introduce amendments at that stage. Several suggestions which had been made for the amendment of the Acts, however, merited very careful consideration, and the question of modifying the Acts, at the earliest opportunity, would receive his earnest attention.

Sir N. Grattan-Doyle asked the Minister of Transport whether it was his intention to extend the grant-in-aid for the construction of the new bridge at Charing Cross and the transfer of the Southern Railway station to the south bank of the river so as to include a scheme for the improvement of the area between the County Hall and the proposed new station?

Colonel Ashley said that the London County Council had under consideration the provision of road facilities and other improvements on the south side of the river, to the west of the proposed site for the new Charing Cross Bridge, as part of the modified scheme. No decision had yet been reached as to the assistance which could be offered from the Road Fund towards the cost of this extension of the scheme.

Mr. Harris asked the Prime Minister whether his attention had been called to the danger that was threatening the amenities of certain neighbourhoods in London with historical and antiquarian associations, such as Downshire Hill, Hampstead, because of the opening of new omnibus routes; and whether, seeing that neither the Ministry of Transport nor the Metropolitan police had powers of veto over traffic routes except from a purely traffic point of view, he would consider promoting legislation to vest such powers in some Government department?

Mr. Baldwin said that he regretted that he could not undertake at the present time to promote legislation on the lines suggested.

Mr. Harris asked the Under-Secretary of State for the Home Department, as representing the First Commissioner of Works, what progress had been made with the arrangements for the repair of the stonework at the Houses of Parliament?

Sir V. Henderson replied that the First Commissioner hoped within the next few weeks that he would receive definite advice from the Department of Scientific and Industrial Research regarding the selection of stone for the repairs. Meanwhile orders had been placed with the maintenance contractors for replacing a length of the parapet and two pinnacles in Clipsham stone on the south front in advance of the general work; and tenders were about to be invited for the provision of staging at the central tower preparatory to the erection of scaffolding on that part of the building.

Viscount Sandon asked whether there was any scheme prepared for stone-facing the Horse Guards' side of Admiralty House and that side and the street side of Downing Street in keeping in each case with the surrounding architecture; when it was proposed to carry it out; and what it would be estimated to cost?

Sir V. Henderson said that, as regarded the first part of the question, no scheme of that nature had ever been prepared or considered. It was not possible to prepare estimates for work which it was not proposed to carry out.

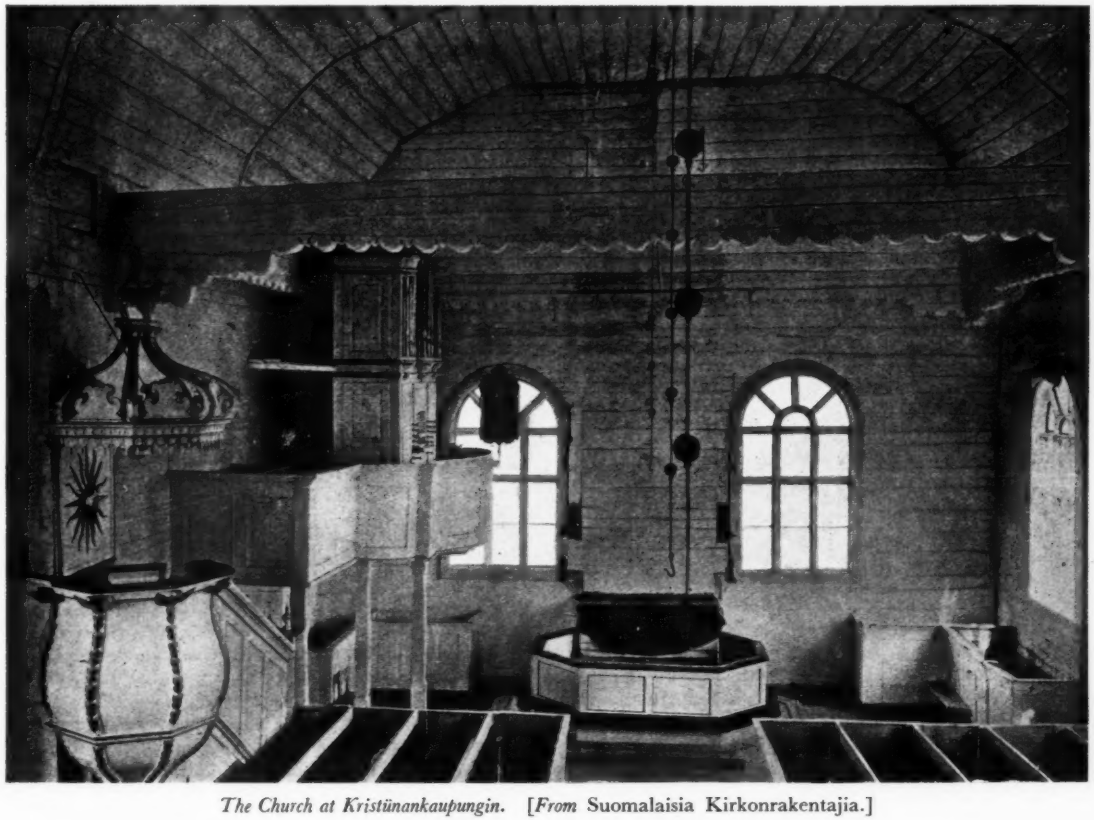
LITERATURE

CHURCHES IN FINLAND

IT was at the end of the seventh century that the Finns, relations of the Magyars but not of the Scandinavians, came across Russia and were stopped by the Gulf of Bothnia. For four hundred years they were uncivilized, but then began to attack the coasts of Sweden at the other side of the gulf. Their incursions becoming troublesome, the Swedes retaliated and introduced Christianity in the year 1157 and established in the country Bishop Henry, an Englishman who became the patron saint of Finland. There ensued a period while Sweden was busy otherwise, when the Finns relapsed, and another English ecclesiastic, Bishop Thomas, was called there in 1209, who tried to secure the country for the Pope, but Birger Jarl's protracted efforts resulted in maintaining the earlier influence. The Finns were always uneasy in their connection with Sweden, but were forced to an unwilling submission which, however, resulted in a rapid development in their civilization. In 1528 Gustavus Vasa introduced the reformed religion into Finland and began to build churches, and by the year 1600 there were sixty scattered about the Country of Lakes—Suomi—beautiful country of a pastoral character which, in time, subdued the savage Finn to its influences, but never modified his sturdy independence. The Swedish influence was not alone in Finland, for adjacent Russia was ever anxious to participate and, indeed, became the paramount power at a later date, until in 1918 Finland fought Russia, and at last secured her independence and became a nation. It is a highly civilized nation, with admirable educational institutions from the ancient University of Åbo downwards, academies of the arts and sciences, a fine system of republican government, and a thriving commerce.

This book on the Finnish wood churches and church builders of 1600-1700 is one further evidence of two phases of Finnish culture—its spirit of research and its surprising efficiency in the making of fine books. In 1850 a great burst of enthusiasm for national archæology, art, and history arose in the land. Stimulated by the possession of that great national epic, the *Kalevala*, the scholars set to work to unearth and record other cultural treasures. This book is a result of that enthusiasm. All the early churches of Finland have yielded to research, and it would be difficult to point to a more painstaking or more brilliant volume of its kind. Its first advantage is that, in a country sparsely populated comparatively, the number of the subjects is restricted; the second, that careful records have always been kept of the churches by those responsible, who no doubt had ample leisure, for only 16 per cent. of the Finns are town dwellers. The churches with which the books deal are mostly in the country. There may be in these churches some small influence from Russia. The author gives an illustration of an Archangel church, with its cupolas to illustrate the point, but there is no doubt concerning the Swedish influence, and, of course, it is no matter of surprise. There is no trace of any influence of such structures as Dalhem Church, typical of Gothland, but there is overwhelming ocular evidence that the Swedish thirteenth-century Abbey of Varnhem is the model of much that was built in Finland on a modest scale. These churches are mostly of wood, and that is why, incidentally, one would imagine that in their photographs many among the 700 supplied show a ladder of many rungs leaning against the roof, presumably in case of fire, possibly for other reasons, too.

One of the most interesting of all the churches of Northern France is that of Saint Catherine at Honfleur. It is of timber and has two naves. It is a barn structure and its belfry is on the other side of the street. It was built at the end of the fifteenth century at a time when Honfleur was the port in France for the receipt of Scandinavian timber. In Finland there are scores of churches of barn structure, with detached belfries. It would appear that Saint Catherine's at Honfleur is a sister church to the many built in Finland at the same period by the Scandinavian Swedes. The Finnish churches are delightful architecturally, warm and comfortable, homely and full of folk-art and craft.



The Church at Kristünankaupungin. [*From* Suomalaisia Kirkonrakentajia.]

Inside they are often richly decorated and sumptuously furnished. They have their steeples, the landmarks for the scattered herdsmen, fishers, and agriculturists, whose emblems are to be seen in them. They probably provide very hearty, serious, and comforting services, not too short. Heikki Klemetti has provided a book of an original and personal character; it is a monumental national work, exhaustive but not exhausting, long but not too long, and it is most creditable to its printer and publisher.

KINETON PARKES

Suomalaisia Kirkonrakentajia, 1600-1700, by Heikki Klemetti. Porvoo, Finland: Werner Söderström Osakeghtiö. 4to, pp. 331 + col. plates 4. Illus. 704.

GREEK ART AND LIFE

It is symptomatic of the present-day attitude towards history that this book on *Art in Greece* forms but a fraction of a very large whole—nothing less, in fact, than the *History of Civilization*. This volume belongs primarily to the parallel French series, and here and there a few turns of expression reveal the fact by suffering from a slightly crippling literalness in translation into English. A scholarly foreword by Monsieur Henri Berr, editor of the French series, forms an interesting essay on Pure Art as the product of leisure in artist and *amateur* of art alike. The introduction is the work of Monsieur de Ridder, curator of the Musée du Louvre, who had the whole book planned out, but had only written a small portion before his death in 1921. The main part of the volume is therefore due to the equally specialist qualifications of Monsieur Deonna, of the University of Geneva.

The book proper is divided into five parts, dealing in turn with the "Aim of Art," "The Agencies of Realization," "Realization," "Characteristic Features of Greek Art," and finally with "The Place of Greek Art in the History of Civilization." Under these main headings separate chapters deal, for example, with "Art and Religion," in which it is pointed out that while "Religion . . . . is responsible for the spirit in which the artist treats his themes," yet "conversely, art reacts on religion . . . because the image gradually modifies man's ideas of heaven." In the chapters dealing with "Art and Manners" and "The Greek Ideal" it is observed that the dominance of the athletic ideal precluded the realistic portrayal of children, animals, the aged, or the infant, but that "in Hellenistic times the child has definitely conquered his place in art"; emotion is expressed in the faces, not only of slaves and inferior beings, but even in the formerly serene countenances of divinities; moreover the funerary art of the fifth century gives place to portraiture. Pose, anatomy and drapery are examined at considerable length, and abundant examples are cited, although actual illustrations are not numerous. To the subject of the development of a sense of rhythm, "symmetria," and proportion, the author devotes a chapter, stressing his points by analysis of vase paintings, metopes and pediments. He concludes: "Whether it is a matter of pose, anatomy, drapery or composition, these principles all spring from one source, a spirit of endeavouring to achieve, with a growing exactitude of observation, increasingly perfect unity and synthesis in which details have their logical and at the same time their harmonious place." A brief chapter examines the effects of the subordination of the individual to the state, and a contrast is drawn in another chapter between "the works of art engendered by the war of 1914-18 . . . and the Persian wars." On the subject of "The Various Branches of Art and the Choice of Materials," and in the chapters on Ionian and Dorian art, reference is made to the evolution of column and capital, and to the differences in character of the temple plan, the logical successor to the palaces of earlier civilizations, but on the whole the book is concerned more with painting and sculpture than with building. The reason for this is found in the author's statement that architecture is an art whose "prime object is solidity rather than beauty, and it is designed before all else to shelter and cover that which the building is to house. Consequently it cannot be expected to teach us so clearly or decisively as the other two what was the Greek conception of art," while "sculpture and painting admirably sum up for us the creative effort of the Hellenes." This attitude is entirely reasonable when it is realized that the aim of the book is "to show the part which art has played in the life of the Greeks, and the character it took on among them, in such a fashion as to explain the influence exercised by Greek artists on the art of other peoples and later ages." Membership of an inter-related group of many books is indicated by such an aim, and by the many references to the companion volumes, yet this thorough and valuable study is emphatically able to take an independent place of its own in the literature of art and life.

V.M.C.

Art in Greece. By A. de Ridder and W. Deonna. Translated by V. C. C. Collum. London: Kegan Paul.

TRADITION AND MODERNITY IN PLASTERWORK

Sir Lawrence Weaver, K.B.E., in *Tradition and Modernity in Plasterwork*, reprinted in book form by the courtesy of the editor of *The Architectural Review*, makes an attempt to show how tradition in the case of one notable line of craftsmen, so far from stereotyping method and design, has aided them to help architects in seizing the occasion for design which is given by the development of technique. He makes the four generations of Jacksons a peg for his survey of technical change in plasterwork, because he regards it as important to relate development of design to development of materials and their uses. Today the fundamental change is in the direction of the monolithic structure and the use of concrete, and "one of the problems in the use of reinforced concrete as a material for honour, fit to show its face to the world, is to give it a seemly and attractive face. Here obviously is a prodigious opportunity for the development of the art of the plasterer."

George Jackson, the reader learns, developed largely and practically for the brothers Adam the use of "compo." At his little workshop in Ealing he cut, under their direction, reverse moulds in box or pear tree in which the "compo" was pressed, and these are still in the possession and use of George Jackson and Sons at Rathbone Place, where also the secret of Adam's mixture is treasured. The disadvantages of "compo" led to the development of carton-pierre, which was brought into normal use in this country by John, the son of George, about 1840. He was also active in employing papier mâché for mouldings and ornaments. These, says Sir Lawrence, were real contributions to an increased flexibility of technique. This first John Jackson, second of the dynasty, begat another John and Edward, who were also lively in contrivance.

"Fibrous plaster made possible the change in the interiors of ocean liners for cabins, suggestive of a ship to the similitude of large hotels ingeniously fitted into a swiftly propelled steel shell with a sharp front edge. Mr. Frank Jackson was the first to do this, in one of the old P. and O. liners, and he must be hailed (or otherwise), as the true begetter of those baronial magnificences in which international persons seek to forget the tremors of the sea." The Jacksons reintroduced into this country the ancient habit of using "stuc" in place of ordinary plaster for the interior walls of buildings, thus furnishing the architect with the technical means of expressing himself in a French accent if he so desired.

Since Sir Lawrence Weaver's article appeared in *The Architectural Review*, he has paid a visit to the United States, where he found the reaching towards tradition and modernity a little surprising. He says: "Side by side with the determination to take every advantage of new constructions and new materials, is an almost childlike pleasure in traditional schools of decoration. . . . Serious education in the art of architecture is so recent that they have not had time to get bored with infinite repetitions of the same motifs." Sir Lawrence says, however, that in decoration, furniture, glass, fabrics and the like the Americans show a great readiness to be interested in modern developments.

The book contains about fifty photographic illustrations of plasterwork, the majority of which have been designed by famous modern architects. These illustrations show the charming

effects obtainable by the use of modelled fibrous or French "stuc" details for exterior or interior decoration. Other illustrations show charming "Adam," Louis XVI, and Georgian period treatments of chimney breasts, and a delightful "Adam" motif made in composition and carton-pierre for the original moulds in the possession of Messrs. G. Jackson and Sons, Ltd. A portrait of George Jackson (1766-1840), forms the frontispiece.

Tradition and Modernity in Plasterwork. By Sir Lawrence Weaver, K.B.E., F.S.A., HON. A.R.I.B.A. G. Jackson and Sons, Ltd. Price 7s. 6d.

CORRESPONDENCE

HOUSING COSTS

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—In reply to Mr. B. S. Townroe's letter in your issue of July 18, I wish to say that my committee is concerned only with collecting the money necessary for the purchase of the L.C.C. portion of the Pulford Street site, the acquisition of which, for housing purposes, secures an addition of half an acre of frontage as a gift from the Duke of Westminster.

Without, however, entering now into a detailed examination of Mr. Townroe's questions, we can assure him and your readers that before any appeal was issued the Pulford Street Site Committee took expert and technical advice on the financial soundness of the proposal, and the suitability of the land for housing purposes. In due course the proposals of those responsible for the development of the site will be put before the public, and the point Mr. Townroe has raised will then be fully dealt with.

FLORENCE WALSTON,
Chairman of the Pulford Street Site Committee.

BEDDING AND POINTING PANTILES.

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—I am fully in agreement with the reply to your querist, F. G. C., but there is one point which is not definitely referred to, either in the question or the reply. Occasionally an architect, or client, will be alarmed because he can see light through the lapped joints between successive courses of pantiles when he stands inside the roof, and will insist upon these joints being pointed up on the inside. This is, however, a mistake, because most pantiles are porous, and a certain amount of water finds its way through to the undersides of the tiles, and may be added to by the effects of condensation. This moisture eventually forms into beads which then coalesce and run down the underside of a sloping tile, in tears. If the lapped joint is left open, as it should be, the water finds its way out on to the top of the lower tile, but if this joint is pointed the water drips off at the joint, and spots of dampness appear upon the ceiling below.

L. E. WALKER

BOATHOUSE DESIGN

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—I am about to build a boathouse, and I should be grateful if any of your readers could let me know, through your columns, of any technical "snags" which are to be avoided, and also any points which they have discovered from their own experience to be worthy of notice.

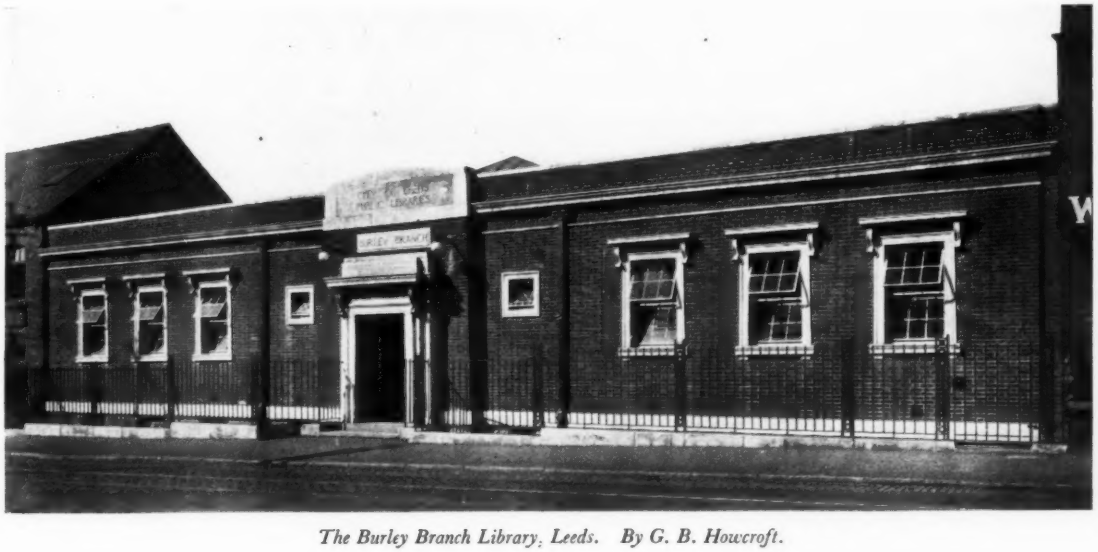
LANDLUBBER

SOCIETIES AND SCHOOLS

The Welsh School of Architecture

The Welsh School of Architecture, which has recently been granted the status of "Final Recognition" by the R.I.B.A., has, during the last few months, moved into the new wing at the Technical College, Cardiff, where it is accommodated in excellently furnished and equipped new studios, lecture-rooms, etc. At the Technical College, Cardiff, ten scholarships, covering tuition fees and maintenance grants of £40 per annum for three years, are offered for competition annually. As candidates for entry to the Welsh School of Architecture are eligible to compete for these scholarships, they are of considerable interest to those contemplating entering the architectural profession. The scholarship examination is a competitive one, and is of about the same standard as matriculation. In the case of candidates for the School of Architecture the subjects are: 1: English; 2: mathematics, two papers—*a :* algebra and arithmetic; *b :* geometry and mensuration; 3: a modern language (French, German, or Welsh); 4: physics with mechanics, or chemistry or higher mathematics; 5: history, geography, or elementary architectural drawing. Candidates not taking elementary architectural drawing as one of the subjects of the examination must satisfy the head of the department as to their ability in this subject.

The department has now been at work for rather more than eight years under the charge of Mr. W. S. Purchon, M.A., A.R.I.B.A., the lecturer in architecture being Mr. R. H. Winder, M.A., A.R.I.B.A., and the assistant lecturer, Mr. Lewis John, M.A., A.R.I.B.A. The following local architects assist in the work of the



The Burley Branch Library, Leeds. By G. B. Howcroft.

advanced course as honorary lecturers, viz: Messrs. Percy Thomas, V.P.R.I.B.A.; Ivor Jones, A.R.I.B.A; T. Alwyn Lloyd, F.R.I.B.A., M.T.P.I.; H. Teather, F.R.I.B.A.; A. L. Thomas, F.S.I., M.T.P.I.; C. S. Thomas, F.R.I.B.A.; J. H. Jones, F.R.I.B.A. Students in the department also attend courses of instruction in the department of engineering, technical chemistry, mathematics, and the school of art, all of which are housed in the same building.

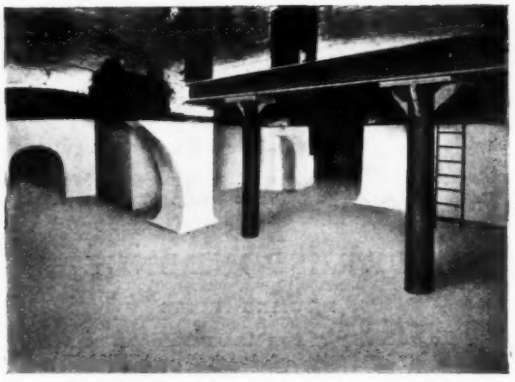
The three years' full-time day course leads to the award of the certificate, to the holders of which the R.I.B.A. grants exemption from its intermediate examination, while those students who successfully pass through the diploma course are exempted from the R.I.B.A. final with the exception of the subject "Professional Practice." This diploma course follows the certificate course and consists of two sessions, the former of these being of six months' duration only, the intervening six months being spent in architects' offices. There is also an evening atelier for architects' assistants who cannot attend the day courses.

The department is in close touch with the South Wales Institute of Architects, representatives of this body being on the advisory committee of the school, and students of the school are eligible for the prizes awarded by the Institute. In addition to these awards, there are a number of school prizes presented in the main by local architects. The external examiner for the past session was Professor A. C. Dickie, M.A., F.S.A., A.R.I.B.A., while those for the coming session are Professor L. B. Budden, of the University of Liverpool, and Mr. L. H. Bucknell.

The school year commences on Tuesday, October 2, but intending students are advised to apply at an early date for the particulars of the courses of instruction and of the entrance and scholarship examinations. Candidates for the latter should obtain application forms which must be completed and submitted by September 15.

TRADE NOTES

An interesting case of waterproofing in the cellars at Irongate Wharf, belonging to the General Steam Navigation Company, has been brought to our notice. Here there is a 10 ft. wall separating a number of cellars from the river, which at high tide is 18 ft. above floor level. Matters were further complicated by the fact that part of the walls were of very ancient construction, some of them, it is believed, being part of the monastery that used to be attached to the Tower of London. The floor was made of poor concrete which had been in position for many years. Owing to the excessive amount of water coming into the cellars it was necessary to have two power pumps going day and night during the work; in fact, on one occasion the pumps were left off for two days and about 3 ft. of water covered the whole of the floor. The contractors, The Waterex Co., Ltd., realized that they had a very difficult problem with which to contend, and owing to the nature of the surfaces to be treated a considerable amount of preparatory work would have to be done to render the cellars a fit subject for waterproofing. A new reinforced concrete slab of 6 in. was laid on top of the original floor, as there was a danger that when the inflow of water was stopped the pressure might be sufficient to fracture the weak concrete already in place. When this preparatory work had been completed it was found that the water was still flowing in at practically the same rate, and weep pipes were therefore inserted to concentrate this flow. The walls and floor were well roughened by hacking, and after this the prepared surfaces were rendered with cement and sand and Waterex (two coats), the total thickness of the rendering being about ½ in. on walls and ¾ in. on the floor. When this rendering had sufficiently set to withstand the water pressure, the weep pipes were removed and the holes plugged, and a rendering of the same mix carried over the plugging. It might be considered by many that it is a dangerous practice to render on the inside when the pressure is from without, but if the surface has been properly keyed and the rendering carefully applied perfect results can be obtained.



The cellars at Irongate Wharf, as they are now.

Petrol-paraffin and oil engines, pumps and pumping plants are among the machinery to be exhibited by Messrs. Ruston and Hornsby, Ltd., at the Royal Agricultural Society of England Show, to be held at Nottingham from July 10 to 14. The petrol-paraffin engines, made in three classes, will be shown in sizes from 1½ to to 10½ b.h.p. These engines start immediately from cold without the use of a blow lamp, run for a short time on petrol, and afterwards on paraffin or kerosene. The hopper-cooled type is claimed to be suitable for all agricultural and general purposes and can be mounted on wooden skids or on a small four-wheeled truck. These engines are fitted with the Wico magneto, which sparks at slow speeds and is claimed to permit an engine to "idle" sweetly and evenly for indefinite periods. The type OKE, 7 b.h.p., is suitable for industrial and electrical purposes. The engine shown is direct coupled to a 3¾ kw. Ransome dynamo. Another exhibit worthy of noting will be the 1½ kw. lighting set, comprising a Ruston-Hornsby class PV high-speed vertical engine, direct coupled to a Ransome dynamo. The fuel used is either petrol or paraffin.

Messrs. G. A. Harvey & Co. (London), Ltd., who since 1874 have specialized in sheet metal and plate work of every kind, are extending the Greenwich Metal Works, Woolwich Road, London, S.E.7. The firm began with workshops covering less than an acre; today they have a plant extending over 22 acres and are erecting additional buildings comprising an area of over 100,000 sq. ft. Among the many specialities of the firm are steel equipment for office and works, tanks of all descriptions, galvanized steel ventilating piping, exhaust ducts, pneumatic collection and conveying installations, ornamental perforated metalwork for ventilating panels, radiator covers, pipe guards, grilles, weather vanes, and special work of all descriptions from heavy steel plate to sheet zinc, copper, brass, etc.

Mr. R. R. Byrne has been appointed director of the newly-formed Vita Glass Marketing Board, with offices at Aldwych House. Mr. Byrne has had a varied experience in publicity on both sides of the Atlantic. The Vita Glass Marketing Board, which Mr. Byrne now directs, is not so much a selling organization as a link between the public and the selling organization of Messrs. Pilkington Bros., Ltd., glass manufacturers, St. Helens, and the trades concerned.

A CORRECTION

We very much regret that in our issue for August 1 we published the winning design in the competition for the Colony for Mental Defectives at Meanwood Hall, Leeds, and attributed the authorship of this design to Mr. H. Carter-Pegg. We are now informed that the winning architects are Mr. H. Carter-Pegg and Mr. J. M. Sheppard in collaboration.

THE WEEK'S BUILDING NEWS

The L.C.C. Education Committee has prepared plans for extension at the POPLAR School of Engineering and Navigation at a cost of £29,250.

*

Plans passed by the NORTHAMPTON Corporation: Three houses, Wellingborough Road, for Mr. E. H. Tibbs; new street and back road, from Brookland Road to The Drive, for Messrs. S. G. Sale & Co.; offices, New Theatre, Abington Street, for the Northampton Theatre Syndicate, Ltd.; twenty bedrooms (for nurses), General Hospital, for the Governors of Northampton General Hospital; alterations and Additions, "Two Brewers" public-house, Abington Street, for the Brewery Co., Ltd.; classroom and alterations, Duke Street, for the trustees of Duke Street Gospel Hall; warehouse, The Riding, for Messrs. E. Archer and Sons, Ltd.; shop front and alterations, 17 Alexandra Terrace, for the Northampton Co-operative Society, Ltd.; stores, 89 Delepre Crescent Road, for Mr. H. Woodbridge; dressing-rooms, offices and conveniences, New Stand, Franklin's Gardens, for the Northampton Football Club Co., Ltd.; three houses, Gipsy Lane, for Messrs. Chowns, Ltd.; rebuilding offices, Conduit Lane and Market Square, for Messrs. A. P. Hawtin and Sons, Ltd.

*

Plans passed by the PLYMOUTH Corporation: Store, 65 George Street, for Messrs. Hender Bros.; gynasium, St. Ursula's Convent, Beacon Park Road, for the Mother Prioress; house and shop, Beacon Park Road and Montpelier Road, for Mr. A. Lethbridge; workshop and showroom, 36 Coburg Street, for Mr. C. P. Skinner; workshop, 3 Queen Street, for Mr. R. H. Harvey; six houses, Pennycross Park Road, for Mr. T. Doney and Son; lecture hall and billiard room, Eric Road, for M. A. J. Wilkins; shop and store, Tavistock Road, Devonport, for Mr. C. Pollard; four houses, Old Walls estate, for Messrs. A. Searle and Son; house and shops, Browning Road, for Messrs. Pengelly Bros.; reconstruction of premises, 100, 101, and 102 Union Street, for the Y.M.C.A.; workshop and offices, Cemetery Road, for Messrs. J. Geach and Sons; extension of Abbey Garage, St. Andrew Street, Abbey Place and Finewell Street, for Messrs. W. Mumford, Ltd.

*

The Durham County Education Committee is to erect a school for 660 children at WHITBURN.

*

The Durham County Education Committee is to erect a school for 240 children at MARSDEN.

*

The Durham County Education Committee has decided to provide a school for 320 children at PICKERING NOOK.

The Durham County Education Committee has acquired a site for the proposed new council school at SWALWELL.

*

Plans passed by the TORQUAY Corporation: Additions to swimming bath, Palace Hotel, Babbacombe, for Mr. Hands; two shops, Cary Castle, St. Marychurch, for Miss Tatham; two shops, Newton Road, for Messrs. Bouttens and Son; covered yard and shed, Temperance Street, for Messrs. Pickfords, Ltd.; thirty houses, Westhill Road, for Mr. E. H. Goss; additions, Hotel Metropole, Belgrave Road, for Mr. F. E. Hall; offices, Lower Terrace, for Mrs. A. J. Gorwyn; twelve houses, Quinta Road, for Messrs. Dart and Pearce; six houses, St. Marychurch Road, and eight houses, Chatsworth Road, for Mr. R. E. Narracott; alterations and additions, St. Gerard's Hotel, Newton Road, for Mr. R. J. Williams; additions, St. Leonard's Hotel, Newton Road, for Mr. J. Vigas; three houses, Hilly estate, St. Marychurch, for Messrs. R. J. Cameron.

*

The Leeds Corporation is in negotiation for the acquisition of land for another housing scheme on the Beckett Park estate, HEADINGLEY.

The Glasgow Education Committee has obtained a site at Bankhead, KNIGHTSWOOD, for the erection of a temporary school.

*

The L.C.C. has leased two plots at the corner of Wood Lane and Valence Avenue, BECONTREE, to Messrs. Marcus Estates, Ltd., for the erection of shop premises with living accommodation.

*

The EASTBOURNE Corporation has further considered the recommendation of the Unemployment Committee regarding the provision of a bathing pool on the sea front, and has asked the borough surveyor to report on the suggestion.

*

The WARWICKSHIRE County Council Mental Deficiency Act Committee recommends the acquisition of the Weston Reformatory School and 91 acres of land for the provision of institutional accommodation.

*

Plans passed by the AUDENSHAW U.D.C.: Twenty-two houses, Kingsley Grove, off Manchester Road, for Messrs. Hadfield and Revell; electricity sub-station, off Manchester Road, Fairfield, for Manchester Corporation Electricity Department.

The Village Hall, Keston, Kent. By Bishop, Etherington Smith and Thorpe.

The LEEDS Corporation has received sanction for a loan of £46,400 for the erection of houses and flats on the Meanwood and the York Road housing estates.

*

The Harwich borough engineer has prepared plans for the erection of a covered bandstand at DOVERCOURT at an estimated cost of £10,000, and it is suggested that competitive plans should be invited.

*

The Leicestershire County Council is to erect an isolation hospital at MARKFIELD.

The New Hucknall Colliery Company is to repair 160 cottages in ANNESLEY. The amount proposed to be spent on each cottage is £170.

*

The Notts County Licensing Committee has approved plans for the erection of a new picture house at Hill Top, EASTWOOD, for Mr. F. G. Stubbs.

*

The Notts County Licensing Committee has approved plans for the erection of a new cinema at High Street and Duke Street, HUCKNALL, for Hucknall Pastimes, Ltd.

RATES OF WAGES

			I	II
			s. d.	s. d.
A	ABERDARE	S. Wales & M.	1 7½	1 2¼
A1	Abergavenny	S. Wales & M.	1 7	1 2¼
B	Abingdon ..	S. Counties	1 5½	1 1½
A	Accrington	N.W. Counties	1 7½	1 2¾
A3	Addlestone	S. Counties	1 6	1 1½
A	Adlington ..	N.W. Counties	1 7½	1 2¾
A	Airdrie ..	Scotland	*1 7½	1 2¾
C1	Aldeburgh	E. Counties	1 3	11¼
A	Altrincham	N.W. Counties	1 7½	1 2¾
B3	Appleby ..	N.W. Counties	1 4	1 0
A	Ashton-under-Lyne	N.W. Counties	1 7½	1 2¾
A3	Atherstone	Mid. Counties	1 6	1 1½
B3	Aylesbury ..	S. Counties	1 4	1 0
B3	BANBURY ..	S. Counties	1 4	1 0
B2	Bangor ..	N.W. Counties	1 4½	1 0½
A	BarnardCastle	N.E. Coast	1 7½	1 2¾
A	Barnsley ..	Yorkshire	1 7½	1 2¾
B1	Barnstaple	S.W. Counties	1 5	1 0¾
A	Barrow ..	N.W. Counties	1 7½	1 2¾
A	Barry ..	S. Wales & M.	1 7½	1 2¾
B3	Basingstoke	S.W. Counties	1 4	1 0
B	Bath ..	S.W. Counties	1 5½	1 1½
A	Batley ..	Yorkshire	1 7½	1 2¾
B	Bedford ..	E. Counties	1 5½	1 1½
A2	Berwick-on-Tweed	N.E. Coast	1 6½	1 2
A2	Bewdley ..	Mid. Counties	1 6½	1 2
B3	Bicester ..	Mid. Counties	1 4	1 0
A	Birkenhead	N.W. Counties	*1 7½	1 2¾
A	Birmingham	Mid. Counties	1 7½	1 2¾
A	Bishop Auckland	N.E. Coast	1 7½	1 2¾
A	Blackburn	N.W. Counties	1 7½	1 2¾
A	Blackpool	N.W. Counties	1 7½	1 2¾
A	Blyth ..	N.E. Coast	1 7½	1 2¾
B3	Bognor ..	S. Counties	1 4	1 0
A	Bolton ..	N.W. Counties	1 7½	1 2¾
A2	Boston ..	Mid. Counties	1 6	1 1½
B1	Bournemouth	S. Counties	1 5	1 0¾
B2	Bovey Tracey	S.W. Counties	1 4½	1 0½
A	Bradford ..	Yorkshire	1 7½	1 2¾
A2	Brentwood	E. Counties	1 6½	1 2
A	Bridgend ..	S. Wales & M.	1 7½	1 2¾
B2	Bridgwater	S.W. Counties	1 4½	1 0½
A1	Bridlington	Yorkshire	1 7	1 2¼
A1	Brighouse ..	Yorkshire	1 7½	1 2¾
B1	Brighton ..	S. Counties	1 5	1 0¾
A	Bristol ..	S.W. Counties	1 7½	1 2¾
B3	Brixham ..	S.W. Counties	1 4	1 0
A2	Bromsgrove	Mid. Counties	1 6½	1 2
C	Bromyard ..	Mid. Counties	1 3½	11¾
A	Burnley ..	N.W. Counties	1 7½	1 2¾
A	Burslem ..	Mid. Counties	1 7½	1 2¾
A2	Burton-on-Trent	Mid. Counties	1 6½	1 2
A	Bury ..	N.W. Counties	1 7½	1 2¾
A1	Buxton ..	N.W. Counties	1 7	1 2¼
B	CAMBRIDGE	E. Counties	1 5½	1 1½
B2	Canterbury	S. Counties	1 4½	1 0½
A	Cardiff ..	S. Wales & M.	1 7½	1 2¾
A	Carlisle ..	N.W. Counties	1 7½	1 2¾
B	Carmarthen	S. Wales & M.	1 5½	1 1½
B2	Carnarvon	N.W. Counties	1 4½	1 0½
A1	Carnforth ..	N.W. Counties	1 7	1 2¼
A	Castleford	Yorkshire	1 7½	1 2¾
B1	Chatham ..	S. Counties	1 5	1 0¾
B1	Chelmsford	E. Counties	1 5	1 0¾
A3	Cheltenham	S.W. Counties	1 6	1 1½
A	Chester ..	N.W. Counties	1 7½	1 2¾
A	Chesterfield	Mid. Counties	*1 7½	1 2¾
B1	Chichester	S. Counties	1 4	1 0
A	Chorley ..	N.W. Counties	1 7½	1 2¾
B2	Cirencester	S. Counties	1 4½	1 0½
A	Clitheroe ..	N.W. Counties	1 7½	1 2¾
A	Clydebank	Scotland	1 7½	1 2¾
A	Coalville ..	Mid. Counties	1 7½	1 2¾
B	Colchester ..	E. Counties	1 5½	1 1½
A	Colne ..	N.W. Counties	1 7½	1 2¾
A3	Colwyn Bay	N.W. Counties	1 6	1 1½
A	Consett ..	N.E. Coast	1 7½	1 2¾
A3	Conway ..	N.W. Counties	1 6	1 1½
A	Coventry ..	Mid. Counties	1 7½	1 2¾
A3	Crewe ..	N.W. Counties	1 6	1 1½
A3	Cumberland	.....	1 6	1 1½
A	DARLINGTON	N.E. Coast	1 7½	1 2¾
A	Darwen ..	N.W. Counties	1 7½	1 2¾
B2	Deal ..	S. Counties	1 4½	1 0½
A3	Denbigh ..	N.W. Counties	1 6½	1 1½
A	Derby ..	Mid. Counties	1 7½	1 2¾
A	Dewsbury	Yorkshire	1 7½	1 2¾
B	Didcot ..	S. Counties	1 5½	1 1½
A	Doncaster	Yorkshire	1 7½	1 2¾
C1	Dorchester	S.W. Counties	1 3	11¼
A3	Driffield ..	Yorks	1 6	1 1½
A3	Droitwich	Mid. Counties	1 6	1 1½
A1	Dudley ..	Mid. Counties	1 7	1 2¼
A	Dundee ..	Scotland	1 7½	1 2¾
A	Durham ..	N.E. Coast	1 7½	1 2¾
B1	EASTBOURNE	S. Counties	1 5	1 0¾
A	Ebbw Vale	S. Wales & M.	1 7½	1 2¾
A	Edinburgh	Scotland	1 7½	1 2¾
A	E. Glamorganshire & Monmouthshire	S. Wales & M.	1 7½	1 2¾
B	Exeter ..	S.W. Counties	*1 5½	1 1½
B3	Exmouth ..	S.W. Counties	1 4½	1 0½
B	FELIXSTOWE	E. Counties	1 5½	1 1½
A3	Filey ..	Yorks	1 6	1 1½
A	Fleetwood ..	N.W. Counties	1 7½	1 2¾
B2	Folkestone	S. Counties	1 4½	1 0½
A	Frodsham ..	N.W. Counties	1 7½	1 2¾
B3	Frome ..	S.W. Counties	1 4	1 0
A	GATESHEAD	N.E. Coast	1 7½	1 2¾
B1	Gillingham	S. Counties	1 5	1 0¾
A3	Gloucester	S.W. Counties	1 6	1 1½
A2	Goole ..	Yorkshire	1 6½	1 2
B	Gosport ..	S. Counties	1 5½	1 1½
A3	Grantham	Mid. Counties	1 6	1 1½
A1	Gravesend	S. Counties	1 7	1 2¼
A	Greenock ..	Scotland	*1 7½	1 2¾
A	Grimsby ..	Yorkshire	1 7½	1 2¾
B1	Guildford ..	S. Counties	1 5	1 0¾
A	HALIFAX ..	Yorkshire	1 7½	1 2¾
A	Hanley ..	Mid. Counties	1 7½	1 2¾
A	Harrogate	Yorkshire	1 7½	1 2¾
A	Hartlepools	N.E. Coast	1 7½	1 2¾
B2	Harwich ..	E. Counties	1 4½	1 0½
B2	Hastings ..	S. Counties	1 4½	1 0½
B1	Hatfield ..	S. Counties	1 5	1 0¾
B	Hereford ..	S. W. Counties	1 5½	1 1½
B	Hertford ..	E. Counties	1 5½	1 1½
A1	Heysham ..	N.W. Counties	1 7	1 2¼
A	Howden ..	N.E. Coast	1 7½	1 2¾
A	Huddersfield	Yorkshire	1 7½	1 2¾
A	Hull ..	Yorkshire	1 7½	1 2¾
A	ILKLEY ..	Yorkshire	1 7½	1 2¾
A	Immingham	Mid. Counties	1 7½	1 2¾
B	Ipswich ..	E. Counties	1 5½	1 1½
C1	Isle of Wight	S. Counties	1 3	11¼
A	JARROW ..	N.E. Coast	1 7½	1 2¾
A	KEIGHLEY	Yorkshire	1 7½	1 2¾
B1	Kendal ..	N.W. Counties	1 5	1 0¾
B1	Keswick ..	N.W. Counties	1 5	1 0¾
A3	Kettering ..	Mid. Counties	1 6	1 1½
A2	Kidderminster	Mid. Counties	1 6½	1 2
B2	King's Lynn	E. Counties	1 4½	1 0½
A	LANCASTER	N.W. Counties	1 7½	1 2¾
A2	Leamington	Mid. Counties	1 6½	1 2
A	Leeds ..	Yorkshire	1 7½	1 2¾
A	Leek ..	Mid. Counties	1 7½	1 2¾
A	Leicester ..	Mid. Counties	1 7½	1 2¾
A	Leigh ..	N.W. Counties	1 7½	1 2¾
B3	Lewes ..	S. Counties	1 4	1 0
A3	Lichfield ..	Mid. Counties	1 6	1 1½
A	Lincoln ..	Mid. Counties	1 7½	1 2¾
A	Liverpool ..	N.W. Counties	*1 10	1 4¼
A3	Llandudno	N.W. Counties	1 6	1 1½
A	Llanelly ..	S. Wales & M.	1 7½	1 2¾
	London (12 miles radius)		1 9	1 4
	Do. (12-15 miles radius)		1 8½	1 3½
A	Long Eaton	Mid. Counties	1 7½	1 2¾
A	Loughborough	Mid. Counties	1 7½	1 2¾
A3	Luton ..	E. Counties	1 6	1 1½
A	Lytham ..	N.W. Counties	1 7½	1 2¾
A1	MACCLESFIELD	N.W. Counties	1 7	1 2¼
B	Maidstone	S. Counties	1 5½	1 1½
A3	Malvern ..	Mid. Counties	1 6	1 1½
A	Manchester	N.W. Counties	1 7½	1 2¾
A	Mansfield	Mid. Counties	1 7½	1 2¾
B2	Margate ..	S. Counties	1 4½	1 0½
A3	Matlock ..	Mid. Counties	1 6	1 1½
A	Merthyr ..	S. Wales & M.	1 7½	1 2¾
A	Middlesbrough	N.E. Coast	1 7½	1 2¾
A3	Middlewich	N.W. Counties	1 6	1 1½
B2	Minehead ..	S.W. Counties	1 4½	1 0½
A	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 7½	1 2¾
A1	Morecambe	N.W. Counties	1 7	1 2¼
A3	NANTWICH	N.W. Counties	1 6	1 1½
A	Neath ..	S. Wales & M.	1 7½	1 2¾
A	Nelson ..	N.W. Counties	1 7½	1 2¾
A	Newcastle ..	N.E. Coast	1 7½	1 2¾
A	Newport ..	S. Wales & M.	1 7½	1 2¾
A	Normanton	Yorkshire	1 7½	1 2¾
A1	Northampton	Mid. Counties	1 7	1 2¼
A	North Staffs.	Mid. Counties	1 7½	1 2¾
A	North Shields	N.E. Coast	1 7½	1 2¾
A3	Norwich ..	E. Counties	1 6	1 1½
A	Nottingham	Mid. Counties	1 7½	1 2¾
A	Nuneaton ..	Mid. Counties	1 7½	1 2¾
B	OAKHAM ..	Mid. Counties	1 5½	1 1½
A	Oldham ..	N.W. Counties	1 7½	1 2¾
A3	Oswestry ..	Mid. Counties	1 6	1 1½
B	Oxford ..	S. Counties	1 6	1 1½
A	PAISLEY ..	Scotland	*1 7½	1 2¾
C	Pembroke	S. Wales & M.	1 3½	11¾
A	Perth ..	Scotland	*1 7½	1 2¾
A3	Peterborough	Mid. Counties	1 6	1 1½
A	Plymouth	S.W. Counties	*1 7½	1 2¾
A	Pontefract	Yorkshire	1 7½	1 2¾
A	Pontypridd	S. Wales & M.	1 7½	1 2¾
B	Portsmouth	S. Counties	1 5½	1 1½
A	Preston ..	N.W. Counties	1 7½	1 2¾
A	QUEENSFERRY	N.W. Counties	1 7½	1 2
A3	READING	S. Counties	1 6	1 1½
B	Reigate ..	S. Counties	1 5½	1 1½
A3	Retford ..	Mid. Counties	1 6	1 1½
A	Rhondda Valley	S. Wales & M.	1 7½	1 2¾
A3	Ripon ..	Yorkshire	1 6	1 1½
A	Rochdale ..	N.W. Counties	1 7½	1 2¾
B	Rochester ..	S. Counties	1 5½	1 1½
A1	Ruabon ..	N.W. Counties	1 7	1 2¼
A2	Rugby ..	Mid. Counties	1 6½	1 2
A3	Rugeley ..	Mid. Counties	1 6	1 1½
A	Runcorn ..	N.W. Counties	1 7½	1 2¾
A3	ST. ALBANS	E. Counties	1 6	1 1½
A	St. Helens ..	N.W. Counties	1 7½	1 2¾
B3	Salisbury ..	S.W. Counties	1 4	1 0
A1	Scarborough	Yorkshire	1 7	1 2¼
A	Scunthorpe	Mid. Counties	1 7½	1 2¾
A	Sheffield ..	Yorkshire	1 7½	1 2¾
A	Shipley ..	Yorkshire	1 7½	1 2¾
A3	Shrewsbury	Mid. Counties	1 6	1 1½
A2	Skipton ..	Yorkshire	1 6½	1 2
A3	Slough ..	S. Counties	1 6	1 1½
A2	Solihull ..	Mid. Counties	1 6½	1 2
A3	South'pton	S. Counties	1 6	1 1½
A2	Southend-on-Sea	E. Counties	1 6½	1 2
A	Southport ..	N.W. Counties	1 7½	1 2¾
A	S. Shields ..	N.E. Coast	1 7½	1 2¾
A2	Stafford ..	Mid. Counties	1 6½	1 2
A	Stockport ..	N.W. Counties	1 7½	1 2¾
A	Stockton-on-Tees	N.E. Coast	1 7½	1 2¾
A	Stoke-on-Trent	Mid. Counties	1 7½	1 2¾
B	Stroud ..	S.W. Counties	1 5½	1 1½
A	Sunderland	N.E. Coast	1 7½	1 2¾
A	Swadlincote	Mid. Counties	1 7½	1 2¾
A	Swansea ..	S. Wales & M.	1 7½	1 2¾
B	Swindon ..	S.W. Counties	1 5½	1 1½
A1	TAMWORTH	N.W. Counties	1 7	1 2¼
B1	Taunton ..	S.W. Counties	1 5	1 0¾
A	Teeside Dist.	N.E. Counties	1 7½	1 2¾
B	Teignmouth	S.W. Coast	1 5½	1 1½
A	Todmorden	Yorkshire	1 7½	1 2¾
A2	Torquay ..	S.W. Counties	1 7	1 2½
C	Truro ..	S.W. Counties	1 3½	11¾
B1	Tunbridge Wells	S. Counties	1 5	1 0¾
A	Tunstall ..	Mid. Counties	1 7½	1 2¾
A	Tyne District	N.E. Coast	1 7½	1 2¾
A	WAKEFIELD	Yorkshire	1 7½	1 2¾
A1	Walsall ..	Mid. Counties	1 7	1 2¼
A	Warrington	N.W. Counties	1 7½	1 2¾
A2	Warwick ..	Mid. Counties	1 6½	1 2
A	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 7½	1 2¾
B	Weston-s-Mare	S.W. Counties	1 5½	1 1½
A2	Whitby ..	Yorkshire	1 6½	1 2
A	Widnes ..	N.W. Counties	1 7½	1 2¾
A	Wigan ..	N.W. Counties	1 7½	1 2¾
B2	Winchester	S. Counties	1 4½	1 0½
A3	Windsor ..	S. Counties	1 6	1 1½
A	Wolverhampton	Mid. Counties	1 7½	1 2¾
A3	Worcester	Mid. Counties	1 6	1 1½
A3	Worksop ..	Yorkshire	1 6	1 1½
A1	Wrexham ..	N.W. Counties	1 7	1 2¼
B	Wycombe	S. Counties	1 5½	1 1½
B1	YARMOUTH	E. Counties	1 5	1 0¾
B2	Yeovil ..	S.W. Counties	1 4½	1 0½
A	York ..	Yorkshire	1 7½	1 2

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.

* In these areas the rates of wages for certain trades (usually Painters and Plasterers) vary slightly from those given. The rates for each trade in any given area will be sent on request.

PRICES CURRENT

EXCAVATOR AND CONCRETOR

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

*

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

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

Portland cement, per ton	£2 15 0
Lias lime, per ton	2 10 0

Sacks charged extra at 1s. 9d. each and credited when returned at 1s. 6d.

Transport hire per day:

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

*

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

RETURN, fill, and ram, ordinary earth, per yd.	£0 1 6
SPREAD and level, including wheeling, per yd.	0 1 6
FILLING into carts and carting away to a shoot or deposit, per yd. cube	0 10 6
TRIMMING earth to slopes, per yd. sup.	0 0 6
HACKING up old grano. or similar paving, per yd. sup.	0 1 3
PLANKING to excavations, per ft. sup.	0 0 5
DO. over 10 ft. deep, add for each 5 ft. in depth, 30 per cent.	
If left in, add to above prices, per ft. cube	0 2 0
HARDCORE, 2 in. ring, filled and rammed, 4 in. thick, per yd. sup.	0 2 1
DO. 6 in. thick, per yd. sup.	0 2 10
PUDDLING, per yd. cube	1 10 0
CEMENT CONCRETE, 4-2-1, per yd. cube	2 3 0
DO. 6-2-1, per yd. cube	1 18 0
DO. in upper floors, add 15 per cent.	
DO. in reinforced-concrete work, add 20 per cent.	
DO. in underpinning, add 60 per cent.	
LIAS-LIME CONCRETE, per yd. cube	£1 16 0
BREEZE CONCRETE, per ft. sup.	1 7 0
DO. in lintels, etc., per ft. cube	0 1 6
CEMENT concrete 4 2–1 in lintels packed around reinforcement, per ft. cube	0 3 9
FINE concrete benching to bottom of manholes, per ft. cube	0 2 6
FINISHING surface of concrete spade face, per yd. sup.	0 0 9

DRAINER

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

*

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

*

STONEWARE DRAINS, jointed in cement, tested pipes, 4 in., per ft.	0 4 3
DO. 6 in., per ft.	0 5 0
DO. 9 in., per ft.	0 7 9
CAST-IRON DRAINS, jointed in lead, 4 in., per ft.	0 8 0
DO. 6 in., per ft.	0 10 0

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

BRICKLAYER

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

*

London stocks, per M.	£4 15 0
Flettons, per M.	3 0 0
Midhurst white facing bricks, per M	5 0 0
T.L.B., multi-coloured facings, per M	7 7 9
DO. *red best facings, per M*	7 7 9
DO. *rubbers 9½ in., per M*	12 0 6
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, ½ in., per yd.	0 8 6
DO. SKIRTING, 6 in.	0 0 11
BREEZE PARTITION BLOCKS, set in cement, 1½ in. per yd. sup.	0 5 3
DO. DO. 3 in.	0 6 6
BREEZE fixing bricks, extra for each	0 0 3

THE wages are the Union rates current in London at the time of publication. The prices are for good quality material, and are intended to cover delivery at works, wharf, station, or yard as customary, but will vary according to quality and quantity. The measured prices are based upon the foregoing, and include usual builders' profits. Though every care has been taken in its compilation it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry.

MASON

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

*

Portland Stone:	
Whitbed, per ft. cube	£0 4 6
Basebed, per ft. cube	0 4 7
Bath stone, per ft. cube	0 3 0

Usual trade extras for large blocks.

York paving, av. 2½ in., per yd. super	0 6 6
York templates sawn, per ft. cube	0 6 9
Slate shelves, rubbed, 1 in., per ft. sup.	0 2 6

Cement and sand, see "Excavator," etc., above.

*

HOISTING and setting stone, per ft. cube	£0 2 2
DO. for every 10 ft. above 30 ft. add 15 per cent.	
PLAIN face Portland basis, per ft. sup.	£0 2 8
DO. circular, per ft. sup.	0 4 0
SUNK FACE, per ft. sup.	0 3 9
DO. circular, per ft. sup.	0 4 10
JOINTS, arch, per ft. sup.	0 2 6
DO. sunk, per ft. sup.	0 2 7
DO. DO. circular, per ft. sup.	0 4 6
CIRCULAR-CIRCULAR work, per ft. sup.	1 2 0
PLAIN MOULDING, straight, per inch of girth, per ft. run	0 1 1
DO. circular, do., per ft. run	0 1 4
HALF SAWING, per ft. sup.	£0 1 0

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

SETTING 1 in. slate shelving in cement, per ft. sup.	£0 0 6
RUBBED round nosing to do., per ft. lin.	0 0 6
YORK STEPS, rubbed T. & R., ft. cub. fixed	1 9 0
YORK SILLS, W. & T., ft. cub. fixed	1 13 0
ARTIFICIAL stone paving, 2 in. thick, per ft. sup.	0 1 6
DO. 2½ in. thick, per ft. sup.	0 1 9

SLATER AND TILER

SLATER, 1s. 9d. *per hour*; TILER, 1s. 9d. *per hour*; SCAFFOLDER, 1s. 5d. *per hour*; LABOURER, 1s. 4d. *per hour.*
N.B.—Tiling is often executed as piecework.

*

Slates, 1st quality, per 1,200:					
Portmadoc Ladies				£14	0 0
Countess				27	0 0
Duchess				32	0 0
Old Delabole	*Med.*	*Grey*		*Med.*	*Green*
24 in. × 12 in.	£42	11	3	£45	1 0
20 in. × 10 in.	31	4	3	33	0 6
16 in. × 10 in.	20	18	0	22	4 9
14 in. × 8 in.	12	1	0	12	16 3
Green Randoms, per ton				8	3 9
Grey-green do., per ton				7	3 9
Green peggies, 12 in. to 8 in. long, per ton				6	3 9

In 4-ton truck loads, delivered Nine Elms station.

Clips, lead, per lb.	£0 0 6
Clips, copper, per lb.	0 2 0
Nails, compo, per cwt.	1 6 0
Nails, copper, per lb.	0 1 10

Cement and sand, see "Excavator," etc., above.

Hand-made tiles, per M.	£5 18 0
Machine-made tiles, per M.	5 8 0
Westmorland slates, large, per ton	9 0 0
DO. *Peggies, per ton*	7 5 0

*

SLATING, 3 in. lap, compo nails, Portmadoc or equal:

Ladies, per square	£4 0 0
Countess, per square	4 5 0
Duchess, per square	4 10 0
WESTMORLAND, in diminishing courses, per square	6 5 0
CORNISH DO., per square	6 3 0
Add, if vertical, per square approx.	0 13 0
Add, if with copper nails, per square approx.	0 2 6
Double course at eaves, per ft. approx.	0 1 0

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

	Med. Grey	Med. Green
24 in. × 12 in.	£5 0 0	£5 2 0
20 in. × 10 in.	5 5 0	5 10 0
16 in. × 10 in.	4 15 0	5 1 0
14 in. × 8 in.	4 10 0	4 15 0
Green randoms		6 7 0
Grey-green do.		5 9 0
Green peggies, 12 in. to 8 in. long		4 17 0

TILING, 4 in. gauge, every 4th course nailed, in hand-made tiles, average per square	5 6 0
DO., machine-made do., per square	4 17 0

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

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

See "Sundries for Asbestos Tiling."

CARPENTER AND JOINER

CARPENTER, 1s. 9d. *per hour*; JOINER, 1s. 9d. *per hour*; LABOURER, 1s. 4d. *per hour.*

*

Timber, average prices at Docks, London Standard

Scandinavian, etc. (equal to 2nds):	
7 × 3, per std.	£21 0 0
11 × 4, per std.	33 0 0
Memel or Equal. Slightly less than foregoing.	
Flooring, P.E., 1 in., per sq.	£1 2 6
DO. *T. and G., 1 in., per sq.*	1 2 6
Planed boards, 1 in. × 11 in., per std.	30 0 0
Wainscot oak, per ft. sup. of 1 in.	0 1 4
Mahogany, Honduras, per ft. sup. of 1 in.	0 1 3
DO. *Cuba, per ft. sup. of 1 in.*	0 2 3
DO., *African, per ft. sup.*	0 1 0
Teak, per ft. sup. of 1 in.	0 1 3
DO., *ft. cube*	0 12 6

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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 segmental soffits, 4½ in. wide, per ft. run	0 0 4½
DO. 9 in. wide and over per ft. sup.	0 1 2

continued overleaf.

CARPENTER AND JOINER: *continued.*

SHUTTERING to face of concrete, per square	£1	10	0
DO. in narrow widths to beams, etc., per ft. sup.	0	0	6
USE and waste of timbers, allow 25 per cent. of above prices.			
SLATE BATTENING, per sq.	£0	12	6
DEAL boarding to flats, 1 in. thick and firrings to falls, per square	2	10	0
STOUT feather-edged tilting fillet to eaves, per ft. run	0	0	6
FEATHER-edged springer to trimmer arches, per ft. run	0	0	4
STOUT herringbone strutting (joists measured in), per ft. run	0	0	6
SOUND boarding, ¾ in. thick and fillets nailed sides to 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, 1¼ 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.*

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Mild Steel in British standard sections, per ton	£12	10	0
Sheet Steel :			
Flat sheets, black, per ton	17	0	0
DO., *galvd., per ton*	19	0	0
Corrugated sheets, galvd., per ton	18	10	0
Driving screws, galvd., per grs.	0	1	10
Washers, galvd., per grs.	0	1	1
Bolts and nuts per cwt. and up	1	18	0

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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.*

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Lead, milled sheet, per cwt.	£1	9	0
DO. *drawn pipes, per cwt.*	1	10	0
DO. *soil pipe, per cwt.*	1	12	0
DO. *scrap, per cwt.*	1	0	0
Copper, sheet, per lb.	0	1	3
Solder, plumber's, per lb.	0	1	3
DO. *fine, per lb.*	0	1	9
Cast-iron pipes, etc. :			
L.C.C. soil, 3 in., per yd.	0	4	0
DO. *4 in. per yd.*	0	4	9½
R.W.P., 2½ in., per yd.	0	2	2
DO. *3 in., per yd.*	0	2	7
DO. *4 in., per yd.*	0	3	6½
Gutter, 4 in. H.R., per yd.	0	1	6½
DO. *4 in. O.G., per yd.*	0	1	10½

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MILLED LEAD and labour in gutters, flashings, etc. per cwt.	3	0	0
LEAD PIPE, fixed, including running joints, bends, and tacks, ½ in., per ft.	0	2	0
DO. ¾ 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. ¾ 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. ¾ in., each	0	13	6
CAST-IRON rainwater pipe, jointed in red lead, 2½ in., per ft. run.	0	1	7
DO. 3 in., per ft. run	0	2	0
DO. 4 in., per ft. run	0	2	10
CAST-IRON H.R. GUTTER, fixed, with all clips, etc., 4 in., per ft.	0	2	0
DO. O.G., 4 in., per ft.	0	2	3
CAST-IRON SOIL PIPE, fixed with caulked joints and all ears, etc., 4 in., per ft.	0	4	6
DO. 3 in., per ft.	0	3	6
Fixing only :			
W.C. PANS and all joints, P. or S., and including joints to water waste preventers, each	2	5	0
BATHS, with all joints	1	3	6
LAVATORY BASINS only, with all joints, on brackets, each	1	10	0

PLASTERER

PLASTERER, 1*s.* 9½*d. per hour (plus allowances in London only)* ; LABOURER, 1*s.* 4*d. per hour.*

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

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LATHING with sawn laths, per yd.	0	1	7
METAL LATHING, per yd.	0	2	3
FLOATING in Cement and Sand, 1 to 3, for tiling or woodblock. ¾ in., per yd.	0	2	4
DO. vertical, per yd.	0	2	7
RENDER, on brickwork, 1 to 3, per yd.	0	2	7
RENDER in Portland and set in fine stuff, per yd.	0	3	3
RENDER, float, and set, trowelled, per yd.	0	2	9
RENDER and set in Sirapite, per yd.	0	2	5
DO. in Thistle plaster, per yd.	0	2	5
EXTRA, if on but not including lathing, any of foregoing, per yd.	0	0	5
EXTRA, if on ceilings, per yd.	0	0	5
ANGLES, rounded Keene's on Portland, per ft. lin.	0	0	6
PLAIN CORNICES, in plaster, per inch girth, including dubbing out, etc., per ft. lin.	0	0	3
WHITE glazed tiling set in Portland and jointed in Parian, per yd., from	1	11	6
FIBROUS PLASTER SLABS, per yd.	0	1	10

GLAZIER

GLAZIER, 1*s.* 8*d. per hour.*

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Glass : 4ths in crates :			
Clear, 21 oz.	£0	0	4½
DO. 26 oz.	0	0	5
Cathedral white, per ft.	0	0	7½
Polished plate, British ¼ in., up to 2 ft. sup. per ft.	0	1	2
DO. *4 ft. sup.* ,,	0	2	3
DO. *6 ft. sup.* ,,	0	2	6
DO. *20 ft. sup.* ,,	0	3	1
DO. *45 ft. sup.* ,,	0	3	3
DO. *65 ft. sup.* ,,	0	3	5
DO. *100 ft. sup.* ,,	0	3	10
Rough plate, ¼ in., per ft.	0	0	6½
DO. *½ in. per ft.*	0	0	6½
Linseed oil putty, per cwt.	0	15	0

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GLAZING in putty, clear sheet, 21 oz.	0	0	11
DO. 26 oz.	0	1	0
GLAZING in beads, 21 oz., per ft.	£0	1	1
DO. 26 oz., per ft.	0	1	4

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

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

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

PAINTER AND PAPERHANGER

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

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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	5	6
Knotting, per gall.	0	18	0
Distemper, washable, in ordinary colours, per cwt., and up	2	5	0
Double size, per firkin	0	3	6
Pumice stone, per lb.	0	0	4½
Single gold leaf (transferable), per book	0	2	0
Varnish, copal, per gall. and up	0	12	6
DO., *flat, per gall.*	1	2	0
DO., *paper, per gall.*	0	16	0
French polish, per gall.	0	17	6
Ready mixed paints, per gall. and up	0	15	0

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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, 3/32 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, 3/32 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	3/16 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	—	—	—	—	—