THE ARCHITECTS' JOURNAL

Wednesday, January 4, 1928

CLEANING THE SLUMS

During the course of this new year it is expected that the Government will fulfil their promise and introduce legislation in order to deal with the slum problem. It may not be possible under existing financial conditions, and so long as a shortage of houses to be let at low rents still remains acute, to *clear* slums. But Mr. Neville Chamberlain hopes to bring forward a measure to help to *clean* slums.

He has justifiably excused the comparative inaction of the past few years in demolishing slum property, on the grounds that before people can be displaced from insanitary houses, alternative accommodation must be provided elsewhere. It is largely because of the intense difficulty of housing those who would be rendered homeless, if notorious slum dwellings were demolished, that local authorities have done so little. It will be remembered, for example, that an annual grant from the Exchequer of £150,000 for slum clearances was contemplated, to be utilized by local authorities in England and Wales, excluding London, under the Housing Act of 1923. Dr. Addison and others exclaimed with horror at the insufficiency of the estimate. Nevertheless, local councils have been able to do so little, that for the year 1926-27 only £18,000 of the whole amount is estimated to be payable.

But there is reason for hope that something may be done in 1928. When it is remembered that during 1927 over 200,000 houses have been completed, and, even more significant, over 230,000 houses of a rateable value of £26 a year and less have been built in seven years by private enterprise alone, without any financial assistance from public funds, it is clear that we are catching up the deficit. It must, however, be confessed that many of these houses have been sold, or are still let at rents beyond the means of the unskilled weekly wage-earner. Accordingly, a general campaign of slum clearances is out of the question. But where houses, however shabby and dilapidated they may appear on the surface, are in good structural condition, or even, if they have only a temporary life, it may well be worth while to clean them up or, to use Mr. Neville Chamberlain's language, to adopt a policy of reconditioning. This is, of course, no new plan. Mr. Claud Leigh, who controls thousands of houses in South London, and who was recently given introductions by Dr. Raymond Unwin in order to study methods employed by enlightened property owners in the United States, makes no secret of his conviction, founded on practical experience, that where the structure is sound, and where the number of houses to be reconditioned is sufficiently large to admit of the overhead charges being kept down as low as possible, then it may be very remunerative. Voluntary societies who have embarked upon this method as a charitable means of relieving housing conditions can, in many cases, pay dividends of 4 or 5 per cent.

Mr. Neville Chamberlain's slum policy will no doubt be based on the following recommendation included in the Report of the Committee on Unhealthy Areas, over which he presided some years ago.

"Pending reconstruction, unhealthy areas might be materially improved if they were purchased by local authorities on terms equitable to present owners, but not prohibitive in cost, and the houses therein altered, repaired and managed on the Octavia Hill system."

Should this be one of the chief features of the Government's slum legislation—as was, indeed, foreshadowed by Viscount Gage last month in a speech in the House of Lords—a considerable responsibility will rest upon the architects employed. There is, in the first place, the possibility that the voluntary panels of architects that are to be set up through the R.I.B.A. and Allied Societies throughout the country, in order to give constructive help in the design and materials of rural building to local authorities who are taking action under the Housing (Rural Workers) Act, may be extended to the reconditioning of insanitary buildings in our towns.

This is, however, a delicate matter. Various voluntary societies have availed themselves in the past of the services of honorary architects. This is the case in the well-known St. Pancras scheme that is supported by the Prince of Wales. But is it fair that architects should give all their time and experience for nothing? It may, of course, be urged that they regard such help as a subtle means of self-advertisement, and affording an opportunity of meeting possible private clients. But the committees of some societies are strongly against asking for the honorary services of architects on the grounds that these may be given half-heartedly, and that in any case the labourer is worthy of his hire. In several of the more successful schemes of reconditioning carried out by private agencies the architects have been recompensed with proper fees.

There may be some local authorities embarking on Mr. Chamberlain's policy of reconditioning who will be persuaded by their borough surveyors and engineers to rely entirely on existing staff. This may be economical in the case of a larger authority, but it is surely up to the R.I.B.A. to show that from the practical point of view of saving money, as well as for such æsthetic considerations as were admirably expressed in the annual report of the Council for the Preservation of Rural England, it will be advisable for architects with experience of the special difficulties in modernizing and re-equipping old houses to be employed.

NEWS AND TOPICS

ARCHITECT AS PARLIAMENTARY CANDIDATE — THE MENACE TO A VILLAGE GREEN—THE WEIGHT OF SNOW —TALK WITH A DEATH WATCH BEETLE

MR. A. C. BOSSOM, who founded the Bossom Studentship at the Royal Institute of British Architects, was adopted, last month, as prospective Conservative candidate for Central Hackney. Judging from the speech that he made at the prize-giving at the Polytechnic, he intends to use the public platform occasionally as a means for urging the reorganization of the building industry. With much that he said architects will be enthusiastically in agreement, and, indeed, he is only stating publicly what the Institute of Builders has been advocating for some years past. Mr. Bossom stated that the English building industry had stood still to a very large extent, and that while other European countries had revised their methods, we were missing our opportunities. He accused our building laws of being amazingly cumbrous and laboriously involved, and made the somewhat sweeping statement that many of the other European countries had so revised their regulations as to be able to put them into one-fifth of the number of words. Speaking of the machine-made building, he refrained from saying whether it was better or worse artistically, for " in the last analysis," he remarked, " art is a matter of individual judgment, but practically, economically, and hygienically, it is infinitely superior to the old-fashioned methods." I wonder how many of us colleagues will agree with this dogmatism.

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Sir John Gilmour, at the close of the last session, skilfully evaded questions that were put to him as to the anticipated reduction of the housing subsidy north of the Tweed next October. There has been a good deal of comment made at the Government's decision to give preferential treatment to Scotland as compared with England and Wales in continuing the subsidy without any reduction for a year longer. The justification for this was, of course, that Scotland was behindhand in providing new houses and needed a further stimulus. It is, however, significant from the point of view of the termination of uneconomic subsidies of all kinds to note that the Government of Northern Ireland have already decided not to give further assistance from public funds for the larger types of houses, as they consider that the subsidy arrangements in connection with housing have produced such satisfactory results. The grants for the purpose of encouraging the building of smaller types of houses more suitable for the requirements of the industrial wage earner in the North of Ireland are to be increased.

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Since the Duke of Atholl gave Dunkeld Cathedral to the nation, the Office of Works under the direction of Mr. J. M. Paterson, have been trying to preserve it from collapse. The wall-heads of the nave and aisle walls have first been treated, for portions were in danger of falling, as much of the masonry had become dislodged with tree roots and other vegetable growth. In certain cases the roots had penetrated to a depth of 4 or 5 ft. On the west elevation of the west tower there was a large fracture which showed from ground level almost to the parapet wall. This has been treated by grouting and pointing. The portions of original pavement that have survived for centuries have been carefully preserved. The iron protection guards to the windows in the south aisle have been removed in order to prevent damage to the stonework, and the mullions and tracery have been secured by gunmetal frames. In the course of preserving the external walls a large number of saplings and wild rose roots had to be removed. A paved footpath has been formed along the south side of the cathedral. The Ancient Monuments Department, with headquarters in Edinburgh, have carried out this work with great care, and only a few minor works remain to be completed.

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An interesting comparison was made recently by Mr. G. Montagu Harris, president of the Town Planning Institute, between town planning in the United States and in Great Britain. In Britain town planning depends entirely upon legislation, which has made it the duty of certain types of local authorities, and has given power to others, to prepare schemes for the undeveloped land within their areas. But in the United States the initiative has come not from the legislature, nor from the local authorities, but from business circles. The first step, so Mr. Harris pointed out, has usually been for a body of private persons to form a society or a committee, financed by themselves, to prepare a plan. If they are successful in producing something which seems likely to be of value, the matter gets taken up by the local authority, which usually appoints a special committee to deal with it. It is surprising to learn, however, that the United States are not paying so much attention to their undeveloped areas as to the planning of communities already in existence, and that there are now more than 500 cities in the States which have zoning ordinances. Mr. Harris thought, however, that Great Britain had a great deal to learn from America in the reservation of land for the purpose of recreation, and said that it made one's mouth water to read that probably a park of 1,000 acres could be had in nearly every county of the States for £10 an acre.

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One of the most interesting points raised during the course of the recent deputation to the Prime Minister on housing and regional town planning, was the statement that Italy had now decided to control the erection of new factories. This was mentioned by Colonel Fremantle, who is the M.P. for St. Albans, and also the representative for the Welwyn Garden City. He is the chairman of the Executive Committee for the Garden Cities and Town Planning Association, and has been one of the most consistent advocates of factories being removed from congested industrial areas into garden cities, where the workers will be able to live close to their work in rural surroundings and will be spared the expense and fatigue of the daily journey to and fro. Since then accurate details have been obtained from the Italian Embassy. It appears that in the future the erection of new factories employing more than 100 workers in towns with a population of over 100,000 inhabitants will be allowed in Italy only after obtaining the consent of the Minister of National Economy. The application for the erection of such factories will have to be addressed to the "Circolo d' Ispezione d' Industria e Lavoro," and be accompanied by the indication of the kind of industry, the machinery, the raw materials, the staff and labour, and the spot where it is proposed to erect the factory and the power.

There has been considerable alarm in certain quarters owing to an unexpected decision in the Courts regarding rent restrictions. These Acts have become so complicated and involved that no one except lawyers, who have given special study to the subject, can understand their significance. I hope, therefore, that Colonel Fremantle, the Chairman of the Unionist Housing Committee, will be successful in the efforts that he is making to persuade the Government to agree to simplify these Acts, pending the decontrol which must admittedly be carried out in successive stages. There has, of course, been, in spite of these Acts, a general increase of rent as compared with pre-war years. The actual increase is about 51 per cent. above the figure for July 1914. Recent inquiries show that two-fifths of the increase is due to heavier rates and water charges, two-fifths on account of the landlords responsibilities for repairs, and the remaining fifth on account of the higher level of mortgage interest permitted.

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The menace to the village green outside Stanmore Church may well become a classic in the history of town planning. Mr. Neville Chamberlain had a number of questions put to him in Parliament at the end of the session but he is apparently not prepared to insist on his own recommendations being carried out. These advise that if any local authority decides to alter a town-planning scheme they should advertise the new proposals for two weeks in the local Press in order that adjoining owners may raise any objections, but the Hendon Rural District Council is quietly proposing to allow a development company to build shops on the very spot that was singled out by Mr. Topham Forrest, in his lecture on Greater London a year ago, as being one of the most charming rural survivals within easy reach of the metropolis. Here is, indeed, a case for the Council for the Preservation of Rural England. Local residents are in arms, and at a public meeting unanimously demanded an inquiry by the Ministry. But Mr. Neville Chamberlain seems to fear that, if he asserts himself in this case, he may be inundated by similar requests from other districts, while the local M.P., Sir Cunliffe Lister, is unwilling to go against his colleague in the Cabinet. The secretive way in which the change has been carried out threatens the foundations on which town planning is based. The whole procedure that was drafted by such experts as Dr. I. G. Gibbon, Dr. Raymond Unwin, and Mr. G. L. Pepler relies on publicity. If a rural council can change their scheme without giving public notice many of the proposed development maps become mere scraps of paper.

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Sir Frank Baines, who, by the way, figures in the New Year's Honours as K.C.V.O., has succeeded in making a death watch beetle converse. These insects make a peculiar tapping noise when calling to their mates. Sir Frank kept a specimen in his office, and tried for a long time to tap back again. At last he hit on the correct rhythm, and the little creature responded vigorously. A woman visitor to whom he showed the insect doing its tricks remarked, " Oh, how clever of you to have taught it that ! "

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Although an unusual weight of snow has fallen over most of the British Isles, and great inconvenience has been caused by its obstruction of traffic, actual cases of damage to buildings through the additional load seem to have been satisfactorily few. A fall of snow sometimes adds the last increment of breaking load to a structure that has been built too lightly in the first place, or has gradually become weaker with age, and one such instance that came to my notice may serve as a useful warning that buildings should be inspected periodically from the point of view of " Safety First." The place was a temporary dance hall in the outskirts of a town in the Midlands. It was provided with a segmental roof covered with tarred felt supported upon light wooden lattice trusses resting upon steel stanchions, and the effect of the extra weight was to draw the nails in the fish-plates of the composite tie-beams and let the roof divide neatly in the middle of the span. Each half of the roof then hinged inwards and shot a large drift of snow into the middle of the building. Had the stanchions been able to stand stiffly in place, the destruction might not have been on such a wholesale scale, but when the rupture of the tie-beams allowed the oblique thrust to rock them on their bases there was nothing to prevent a comprehensive movement of the snow-laden roof.

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Actually it is rather difficult to obtain reliable figures for the weight of snow. An allowance of 10 lb. to the foot of roof surface has been suggested, but it is very doubtful if many old or temporary buildings have such a margin of strength for this particular load. Another figure that has been given in a much-consulted handbook is ·433 lb. for a layer of snow 1 in. thick covering 1 sq. ft. of surface. Rather more than 5 lb. per cubic foot. My own experiments with a pint pot full of snow reveal its weight to be just 6 oz. to the pint, or approximately 18 lb. to the cubic foot, so that it is evident that snow under certain conditions weighs far more than at other times, when it is either more or less completely frozen.

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Perhaps it is natural that a great many outbreaks of fire should take place in very cold weather when extraordinary measures are adopted to impart some degree of warmth and comfort to the interiors of buildings. And it is also naturally difficult to cope with a fire when the water pipes are frozen, or when the ice-bound or snow-blocked roads impede the fire engine and slippery pavements afford no foothold to the firemen. The recent spell of cold weather has not been exceptional in this respect, and several fires have been recorded since the snow began to fall. In most cases the severe weather has added considerably to the difficulties of the fire-fighters, and has shown how very much even civilized man is at the mercy of the elements. He has a wonderful equipment of pipes for the supply of water and gas, but in general these services are calculated to stand only a certain amount of bad weather, and then break down when any exceptional strain is imposed. The plumber's harvest is reaped and gleaned very largely through the neglect of the householder to exclude the seeds of trouble by lagging exposed pipes, although past experience has shown with unmistakable clearness what the result of frost will be. It is really too optimistic, in this climate, to suppose that frost will keep away entirely.

ASTRAGAL

THE REBUILDING OF LENS

[BY DENIS GWYNN]

THERE is nothing more significant in all Europe since the war than the complete reconstruction, during the past eight years, of the coal-mining city of Lens. Nowhere in Europe was the devastation of war so overwhelmingly complete. Nowhere has the work of reconstruction been so rapid and so amazingly extensive.

Other parts of France were fought over with no less persistence during the four interminable years of war. The Ypres salient contains more graves, and was ploughed by a greater number of shells. But nowhere in all the battle zone was there anything to compare with the utter ruin that was left in Lens. For more than four years the battle line cut right across the rich area of coalfields which had produced the mining towns of Lens, Liévin, La Bassée, Bethune, and all that cluster of mined industrial centres which the British regiments were to know so well year after year. From the ruins around Loos our outposts used to look out over the larger town of Liévin, and so from there to the gradually disappearing streets of Lens itself. Bombardments, intensified as the months passed, gradually reduced the whole area to one vast rubble-heap, and by the time that Liévin had at last served to be pregnable, the larger prize of Lens was no more than an unending waste of shattered bricks and shell-holes.

But even the unspeakable desolation of Lens, when the British troops advanced across its shapeless ruins in the autumn of 1918, was only the pulverized crust of an incalculable ruin underground. The whole prosperity, the very existence of these modern industrial towns in the coalfield of the Pas-de-Calais, was based upon the vast subterranean organization which the war had wrecked, no less pitilessly than it had ruined the crowded streets on the surface. No man could say, when the troops at last moved forward across this desolate waste of broken streets and pit-heads, how long it must be before the rich coalfields could resume their old activity, or, indeed, whether they could ever be put in working order again.

Millions of capital had been sunk in these workings underground, and it was not the big capitalists alone who had to contemplate the destruction of all their invested wealth. Many of the miners themselves had saved to acquire some little share in the mines, and there was one in particular whose story bears a legend symbolical of the sufferings and of the indomitable courage of France. A young miner, by name Georges Carpentier, had worked in these underground seams, and his prowess as a boxer had attracted the attention of the French boxing promoters. He had left the miners long before he reached the age of manhood, to earn much larger money as a professional pugilist. And by the time the war came, to call him, like

The new city of Lens, photographed from a church spire above the Place Jean Jaures, giving a view towards Vimy and the heights held by the British troops during the war. All the houses are entirely new, for the devastation in the town was so complete that nine years ago hardly a wall was standing.

The new railway station at Lens. It is of reinforced concrete.

all other young Frenchmen, to active service in the trenches, the young boxer had become one of the richest men in the Pas-de-Calais, with all his savings invested in the coalmines where he had worked as a boy.

All that was gone. The mines were not only derelict, but inaccessible with years of neglect. Not one house, or one single wall remained standing in all the once flourishing town of Lens; and before work could be even started on clearing out the shafts, it would be necessary to build houses of some sort for a large industrial population.

Nor was that all. Evidence was soon forthcoming that the underground workings had been deliberately flooded throughout by the Germans before their final retreat. In the earlier years of the war, intrepid French miners, who knew all the underground passages of old, had been gathered into the area to act as guides for British intelligence officers who had dressed themselves in German uniforms and made their way across No Man's Land by uncanny silent paths, to emerge behind the German lines and trust to luck in finding their way back again. But the water gained upon the derelict workings as time passed, and by the end of the war even these daring adventures underground had become impossible. When the whole area was cleared at last, it was found that the Germans had not only broken down the protection of the underground workings against inundation, but had thrown all their dumps of hand grenades and bombs down the workings so as to obstruct the restoration of the mines after their departure.

Yet today practically every coal-pit is at work again. The mines have been reconstructed with every modern improvement; and the towns of Lens, Liévin, La Bassée, and the rest—names which to the vast majority of ex-service men conjure up visions of unspeakable wreckage and desolation—are today rebuilt with broad, clean streets, busy with more traffic than before the war.

It is barely six years since I spent a day amid the ruins of Lens itself, in the course of a journey through the devastated districts. That Lens should have been rebuilt, with practically every trace of ruin gone, since that time, seems more than imagination can conceive. Even then—three years after the armistice—the desolation and the chaos of the ruined city was about indescribable. I went there by car from Arras, the chief town of the Pas-de-Calais, in company with a young French priest, who since the armistice had been the principal pioneer of reconstruction all over the countryside. We had to stop frequently along the route, as he called with messages at isolated groups of the old semicircular tin-roofed huts where farmers and their families were living in the effort to restore their old farms. Every day there were casualties, when a plough would strike against some hidden unexploded shell, or a child would play with some hand grenade or Mills bomb discovered in an old shell-hole. Only an insatiable devotion to the land could have brought them back to face the unspeakable hardship of living in these leaky, rusted huts where the wind swept pitilessly through.

And as we approached Lens itself, all trace of roads, at times the main road itself, had disappeared. Old army signposts, in English and in French, and others in strange languages, gave directions to landmarks which conveyed nothing to anyone arriving for the first time. My friend, who had covered the ground countless times in the past few years, stopped repeatedly to ask his way; but the shabby labourers could not understand even the simplest question in French. They were nearly all imported labourers from Central Europe, glad of any employment that kept them from starvation.

All around us lay an incredible wildness of debris and destruction. What remains most vividly in my mind is the sight of main roads broken into yawning chasms, with immense drain-pipes showing where a heavy shell had shattered the road to fragments. Heaven alone knows how the workers who rebuilt the town, or the Germans who lived in it through the war, were able to stand against the insanitary conditions that all that wreckage of a big town's drainage system must have caused. Most probably they died like flies—and nobody minded much at the time, either during the war or after it. But already the old

The city war memorial at Lens.

inhabitants of the town itself were coming back. The old main street was beginning to take shape again, with tin huts or wooden shacks on either side of it. One saw side by side, for instance, a small one-roomed wooden house where one enterprising shopkeeper had opened a general store, with furniture and crockery and odds and ends displayed outside in the street, for lack of a shop window. Next door to it was a bungalow, scarcely bigger, with a fortuitous board explaining that it was the newly-opened branch of a famous bank. And here and there, as the car jogged over broken roads and dodged the craters left by old drain-pipes, we could see signs of reviving life and activity everywhere.

It was in a by-way of this sort that we came at last to our destination—a small wooden house surrounded by chaotic ruins, where we were to be entertained to luncheon by one of the most remarkable men in Europe. He was still the President of the Mines of Lens, but his recent occupation had been strictly varied. The Germans had kept him as a hostage, and since the war he had been the principal agent in the reconstruction of the whole town; chairman of the Co-operative Society for dealing with compensation claims, the chief promoter of revived activity in the derelict mines, one of the vice-presidents of almost every important society for the reconstruction of all the devastated areas of France, and in his own city a sort of patriarch, inspiring courage and hope among a bewildered and ruined people, ready with his assistance and advice and encouragement to listen to every case of hardship or of loss. Already he had performed miracles. The derelict town, when we saw it at closer quarters, was alive with activity. The mines especially were beginning to come to life again. Already they were producing enough coal to supply their own needs for power to continue the work of excavation and pumping. Before long, several of them would be producing almost the same output as before the war.

But even as one recalls that memorable figure, so full of courage and vitality and energy, so venerable with his white beard and dignified bearing, the subsequent development of Lens seems still incredible. Today all the old ruins have utterly disappeared. What that would mean, I gathered at the time from his own experience when he showed me the high wall of concrete that had been built by the Germans over his own cellars, when they used them as a shell-proof dug-out. All that had to be blasted away before rebuilding could even begin; and it was the same problem everywhere; new foundations to lay, tons of debris to be removed.

But now the whole city has risen again as though by magic—cleaner, better constructed than of old. The red walls and the red-tiled roofs look like a flourishing new town; there can be no memorials, though there can be no city in Europe more conscious of its past. The workers are better housed; they themselves are more numerous. The old grime of a mining town has disappeared; for electricity has been introduced everywhere. Mechanical hand-drills have largely replaced the old pick used in the winning of coal. Machinery, for the most part driven by electricity, is doing nearly all the heavy labour that was formerly done by hand. And the result is not only a cleaner, better organized industry, but one which produces vastly more coal and still employs more men.

What better relations have arisen between capital and labour are largely due to the personal efforts of the principal officials of the mines in helping the working population to formulate their claims to compensation and in securing just treatment for them. Nowhere did the way bring all classes into closer relationship of co-operation. And this new Lens is an expression of that comradeship in adversity —a new city with an ancient tradition of sufferings heroically borne and difficulties splendidly overcome, rebuilt on a scale and on a deliberate plan designed to provide conditions of life for all its citizens that will give full scope for human dignity and happiness.

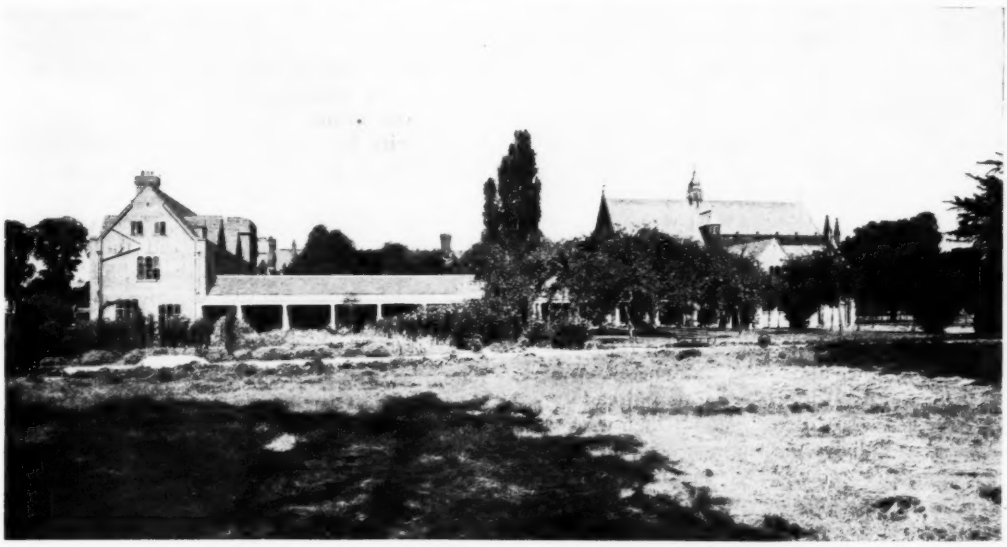
A NEW MONASTIC BUILDING

[BY ERIC L. BIRD]

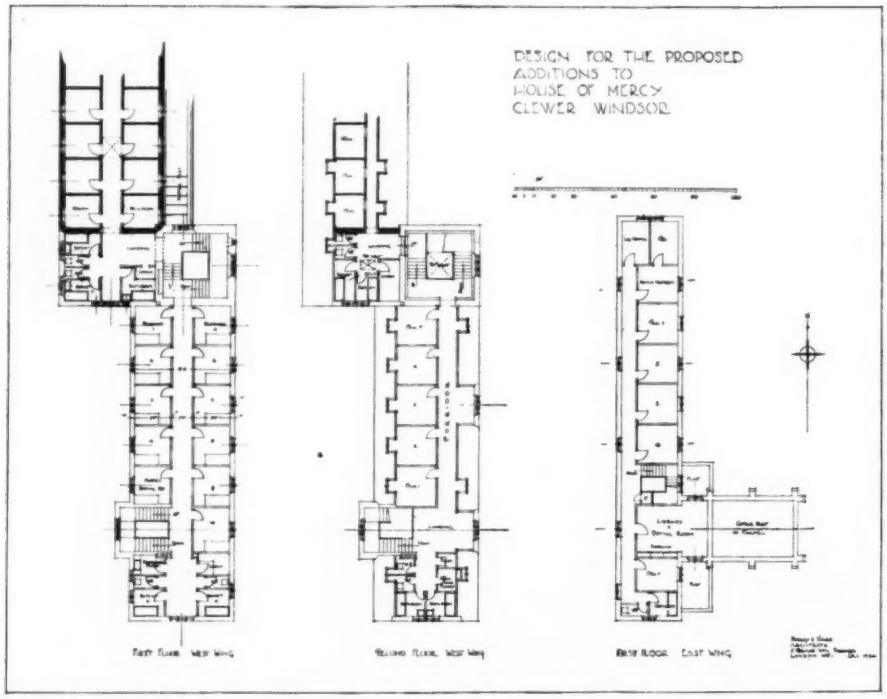
A MONASTIC building seems to arouse a curiously archaic feeling in the mind of the student of modern architecture. Accustomed, as he is, to think in terms of cinemas, shops, office blocks, radio stations, and similar evidences of the rule of Mammon, to him church work is unfamiliar, and a monastery positively unheard of. With memories of medieval studies, the recollection of the sunny Certosa, chilly St. Bernard, or vast St. Gall, the mind takes kindly to such a project. The architect instinctively says to himself: "How I would love a job like that." He would pore over plans of Fountains or Westminster and conjure up visions of vaulted cloisters, tracery, stone-flagged cells, and a vast towering church consisting almost entirely of choir. But he would come to earth with a thud on finding that ecclesiastical bodies have no more money to spend than other people, and want value for it; that lierne vaults are fabulously expensive; and, finally, that monastic buildings are on the whole similar to other large institutions. Further, while the churches have a tendency to regard Gothic as their expression, they are not averse to utilizing the improvements that modern science gives to building construction. Central heating has become general, electricity is a convenience not to be despised, and cells reflect the higher standard of living. After all, the medieval monastery was probably as comfortable to live in as the castle, possibly more so, and the popular idea of "monastic severity" is based on a comparison of the medieval cell with the modern bedroom. There seems to be no foundation for the idea that in order to live a life of ascetic virtue one should endure damp stone flags and insufficient fenestration. It is in the rule and spirit of an order that asceticism is to be found rather than in its buildings. Still, stripped of the trimmings that a romantic imagination might provide, the subject of a monastic building is fascinating and inspiring.

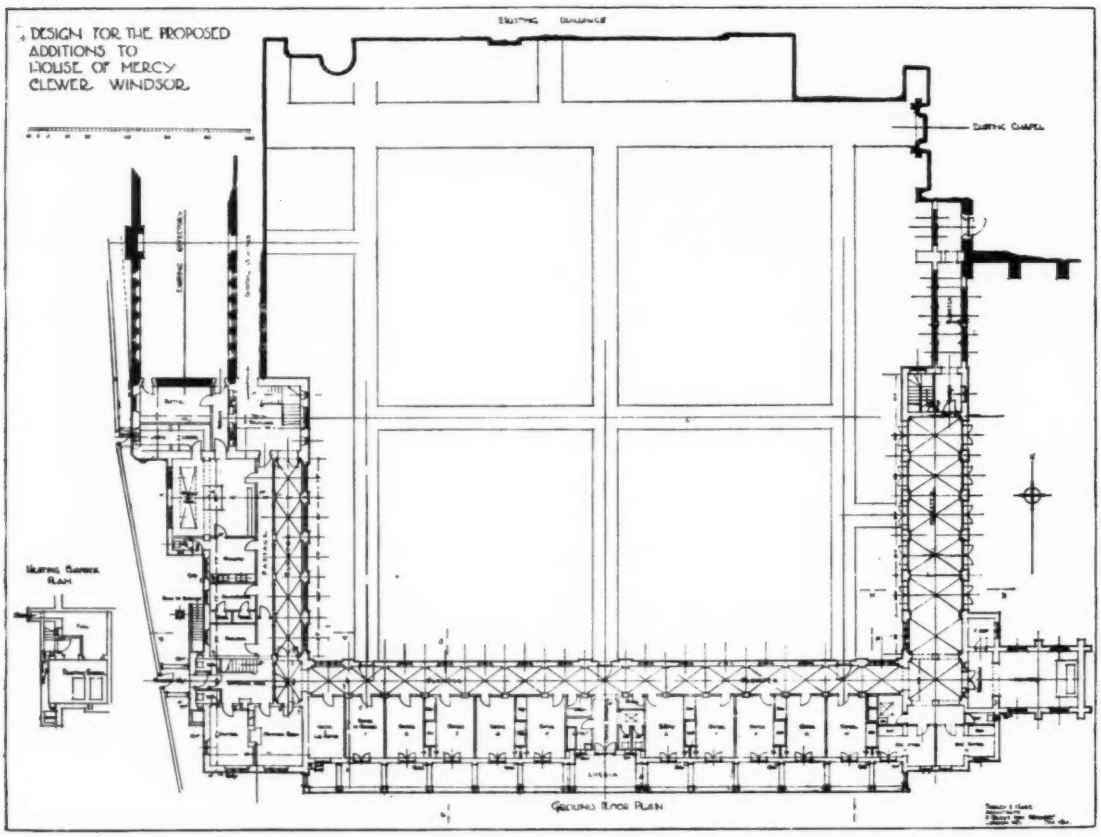
The Community of the Convent of St. John the Baptist at Clewer is a comparatively young Anglican foundation, and the scheme illustrated here consists of the completion of a quadrangle in order to give additional cell accommodation for invalid sisters, sisters in retreat, and novitiates. In addition, a small oratory attached to the cloister was required. The work was entrusted to Mr. C. G. Hare, of Messrs. Bodley and Hare, names which themselves form a link with the last great era of ecclesiastical building, with the days of Pugin, Street, and Scott. The plans show how the existing buildings were placed; they also show with what logical ease the extensions have been made and the quadrangle closed. The old three-floor building on the west was extended at its full height, the junction between the old and new being effected by a bold stair-tower, which bears a clock. The tower successfully masks the necessary break in the internal frontage and has enabled the architect to make sundry desirable changes in detail, such as the omission of an unpleasant string course. The Gothic revivalists may have made long and fervent studies of their subject in detail, but they had neither the restraint nor the ability to handle it well. The view showing the staircase-tower illustrates well this point. Here are two different—and how different—treatments of the same elevational relation of void and solid. The ground floor consists of new kitchen premises and an entrance, over which are two floors of cells. On the east side the old narrow cloister is continued at double width, with the novitiates' quarters above, to which a library is attached. The oratory is at the south-east angle, and the quadrangle is closed by a long range of cells for invalid sisters, with the cloister on one side and a loggia on the other.

Working on an existing modern Gothic building the architect had necessarily to harmonize his extensions with the original. He does not seem, however, to have been wedded to conventional Gothic notions, as his loggia is frankly Classic and the wider portion of the cloister has



Convent of St. John the Baptist, at Clewer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). The loggia from the garden.





Convent of St. John the Baptist at Clewer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). The plans.

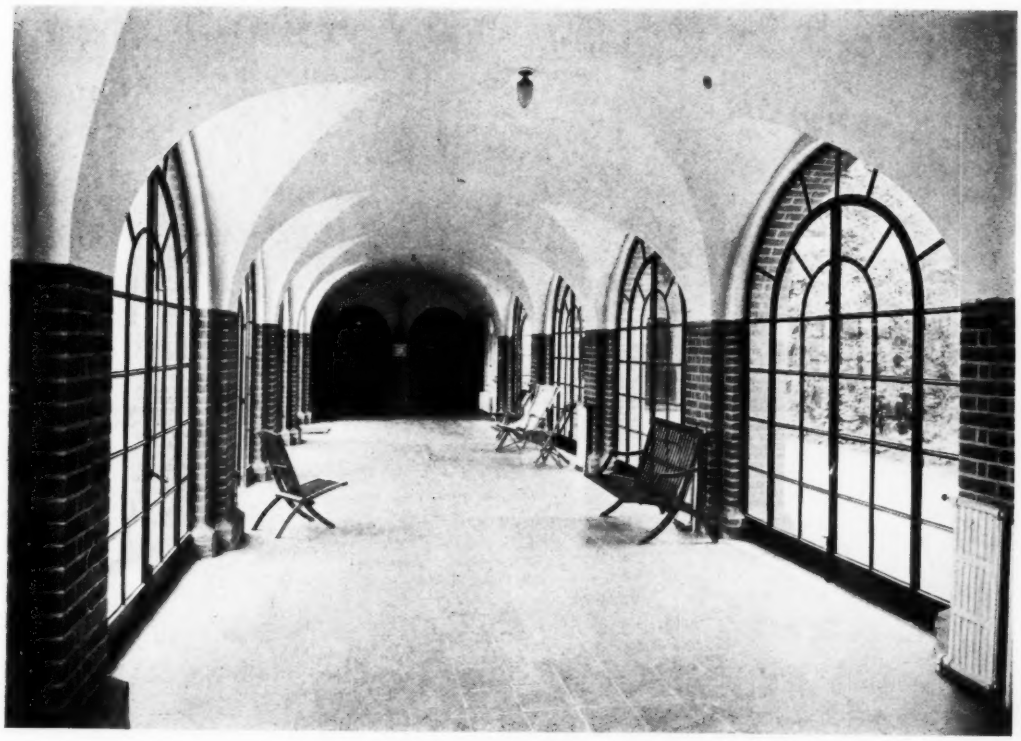
modern metal windows. Strange though it may seem to us, there is still a strong body of opinion in the Church which holds that all ecclesiastical architecture should be Gothic. Quite recently in the presence of the writer an archdeacon was objecting to "pagan" monuments of the Cenotaph type, and, finally, to clinch his arguments, quoted Ruskin—actually Ruskin—on the so-called Christian architecture. The writer ventured into the discussion fortified with technical knowledge of architectural history and found himself instantly out of his depth. The Ruskin party had not the slightest notion of what design or architecture meant. To them the pointed arch and its attributes, logical or illogical, were so many romantic symbols, which they conceived to be the whole sum of architecture, at least, ecclesiastical architecture. The discussion grew wilder and wilder, the writer's best-aimed shafts simply failed to penetrate the armour of ignorance, while he was subjected to a fire of dogmatic assertions which were purely romantic in origin. Now there certainly is in the Church a strong body of opinion on the subject of church architecture which has got no farther than Ruskin. One is appalled to think what would be the fate of the bold architect who wished to emulate the brothers Perret and build a reinforced concrete church. One suspects that he might manage to retain his commission provided he made the windows pointed; more probably he would be dismissed with ignominy and some safe man would be substituted who could be relied on to supply a lifeless and cast-iron reproduction.

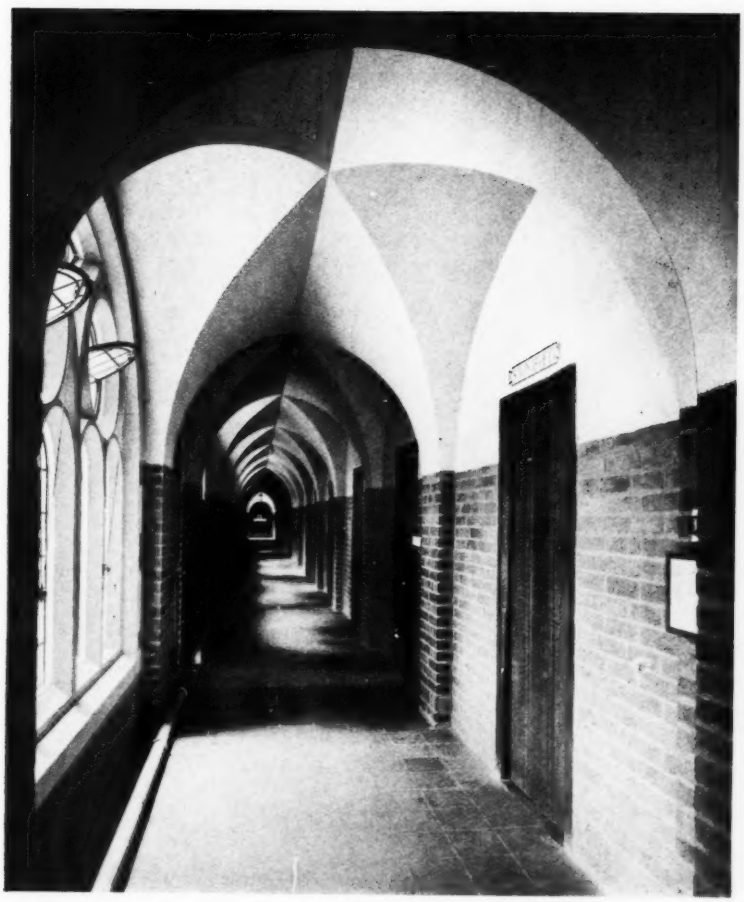
This strong body of opinion probably accounts for the vast piles in England and America of what is known by that curiously paradoxical name of "Modern Gothic." Only a few men, such as Goodhue and Sir Giles Scott, have the eminence and courage to experiment and advance while keeping within the traditions of the Church. That word tradition is the very root of the matter. The Church—any religion, in fact—being an abstract spiritual thing, must express itself in some concrete way, by ceremonial—or lack of it—by music, by words, by structural form. The mode of expression in time becomes crystallized into a tradition until it is mistaken for the spirit itself, which is a form of idolatry over which men have fought and tortured each other. It has not so much mattered to them what was the truth expressed as the language employed. A great body of churchmen regard Gothic as their language, and they understand their religion in its terms. They are ignorant of Early Christian, Byzantine, or Baroque, and have nothing like the respect for Wren's churches that architects have. Now, to the majority of architects Gothic is a dead language; like Latin, it is interesting and the father of much that is modern, but quite as incapable of expressing modernity as Latin is. Just as scholars have been compelled to coin words in Latin, so have the experts coined forms or failed in expression. It seems that the time has come for the Church to change its architectural language again, as it—the Catholic Church in its widest sense—has done many times in the past.

Convent of St. John the Baptist, at Clewer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). An exterior view showing the staircase tower.

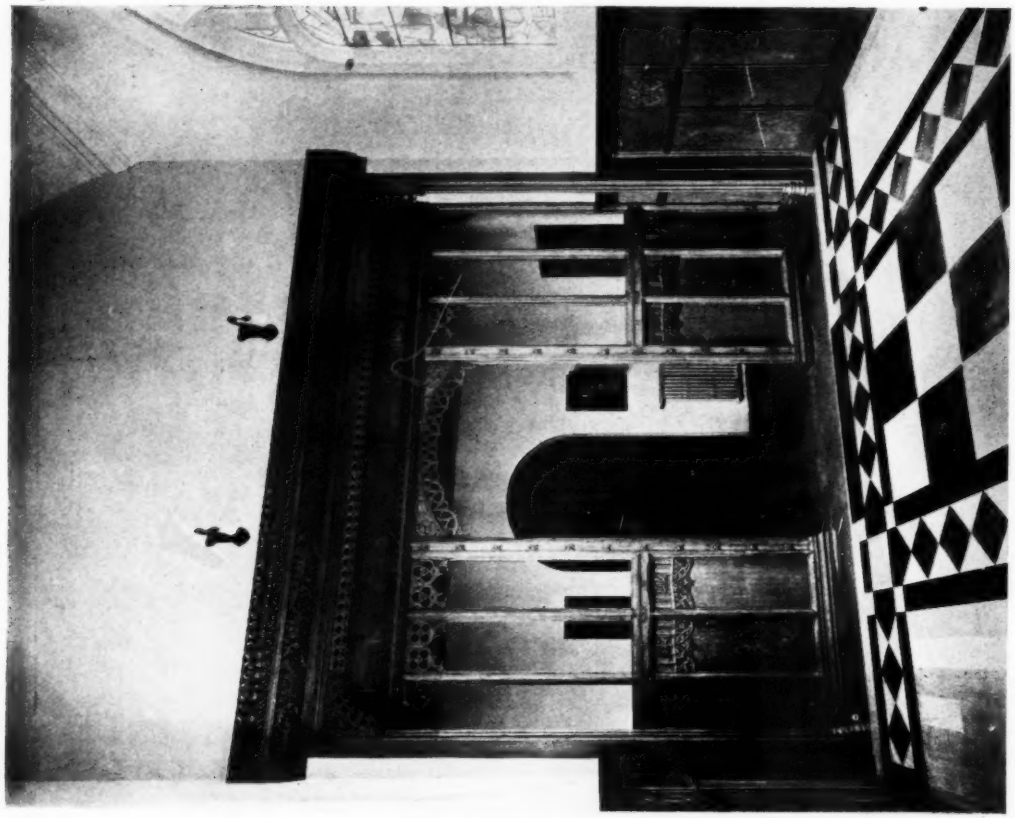
The new architectural language must be founded on the old; the religion does not change, but its mode of expression alters, and a continuity is essential, As a system of construction, Gothic architecture is defunct, but its spirit lives, and that spirit must be breathed into its successor because the Church knows and feels that Gothic afflatus. The Gothic Revival broke down because its architectural exponents were content to make careful copies of period detail and were blind to the spirit. Mere copyism of detail is as the mumbled repetition of word forms long become meaningless. Whatever the material or system of construction—the Perrets with their reinforced concrete churches may possibly be right—the new church architecture must have that fire, that emotion, that movement which is the soul of true Gothic.

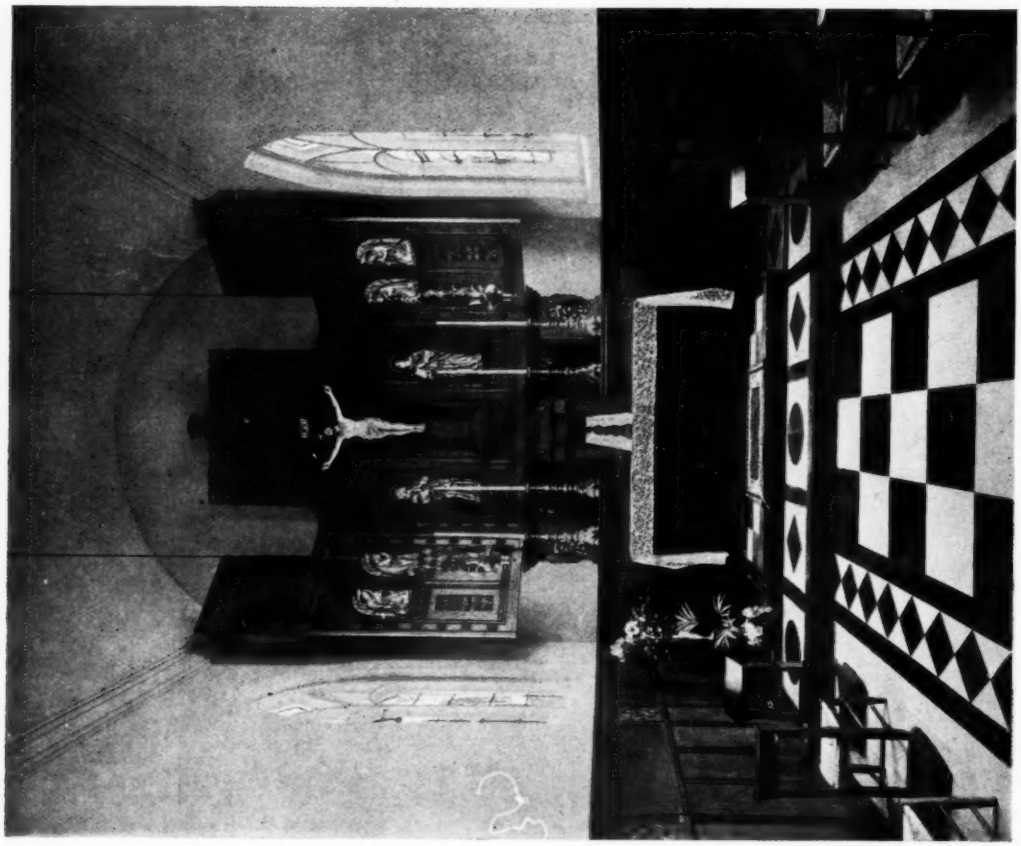
Convent of St. John the Baptist at Clewer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). Above, loggia for invalid sisters on south. Below, an invalid sister's bed sitting-room on the south side of the quadrangle.





Convent of St. John the Baptist at Clewer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). Above, cloister on east side of quadrangle. Below, long cloister, entrance hall, and oratory.





Convent of St. John the Baptist at Cleuer, Windsor. Additions by Cecil G. Hare (Bodley and Hare). Left, the triptych in sisters' oratory. Right, screen at west end of oratory.

DEFECTS IN BRICKS AND MORTAR

[BY PROF. J. A. VAN DER KLOES]

IT has been the author's privilege to have studied the application of mortars for more than forty-five years—commencing at a time when no one paid any serious attention to this subject, and continuing his investigations to the present time. In so long a period many changes have occurred, our knowledge of mortars is greatly increased, and, whilst there is much to be learned, a considerable amount of progress has been made. The application of scientific methods of investigation to mortars has been far more appreciated on the Continent than in England, as is shown by the fact that the author's *Manual for Masons* has passed through seven editions in Holland and Germany, but only one edition has been needed in England. Whether this is due to apathy or ignorance on the part of architects and builders, or to other causes, is difficult to ascertain, yet it is a fact that many English architects and builders are constantly making serious mistakes in the specifications or instructions they issue with regard to the composition of mortars for various purposes.

The scientific investigation of mortar attracted little or no attention until 1909, when the author read a paper on "Some Consequences of the Use of Wrongly-compounded Mortars," the result of which was the formation of an international committee to investigate the subject generally. The war sadly hampered the work of this committee, but it has been revived at an International Congress for Testing Materials, held in the middle of September. Two of the chief properties of defective mortar are the increase in its volume which occurs during the crystallization of the lime compounds, and the scaling of brickwork and masonry, which is due to osmotic pressure. These properties have been intensively studied by the author for some years, and, though his earlier suggestions respecting them were disputed by Hirschwald and others, they have been amply confirmed by more recent work.

As explained in the *Manual for Masons* (J. and A. Churchill), the author has long been convinced that much of the scaling or spalling of stone, brick, and concrete structures is due to the internal pressure caused by the expansion of material within the pores. Frost—to which it is usually attributed—has nothing to do with it, because it occurs just as freely in the absence of frost. That an expansion does occur when a solution crystallizes, may be demonstrated in the following manner, as recently suggested by van der Wallen: a small flask with a very narrow neck is filled to the base of the latter with a solution of sulphate of soda, saturated at 33 deg. C. After some time the height of the liquid in the flask will have increased, to an extent which depends on the degree of saturation and on the temperature. An increase in volume of 0·7 to 0·9 per cent. is sufficient to account for the destructive effect of this salt on masonry, and an increase of 0·25 per cent., when a plaster of paris paste solidifies, is sufficient to crack any ordinary glass vessel containing such a paste. On again warming the solution in the flask to 33 deg. C., the crystals will melt and the volume will contract to its original amount, but will again increase as the liquid cools and crystallization occurs. This phenomenon is precisely similar to what occurs when water freezes into ice, but in the latter case the expansion is about ten times as great.

The second cause of spalling—osmosis—is less obvious, and for a long time the author had no clear idea of the real cause. Osmosis may be described as the passage of salts or other substances in solution through semi-permeable membranes, and such passage is accompanied by the development of pressure. Investigations made prior to the war convinced the author that scaling or spalling often occurs with stone or bricks in which the pores are permeable to pure water, but are too small to be permeable to some solutions. Such materials act as semi-permeable membranes and, when they are wetted by rain, pure water penetrates the pores and the solution of any soluble salts tends to pass in one direction, whilst the purer rain-water passes in the opposite one. The result is that an osmotic pressure is set up which, in some cases, may be great enough to burst the walls of the pores and eventually to cause pieces of brick- or stone-work to flake and fall away.

An important discovery has recently been made by Joosting, who found that, on tapping masonry or brickwork, as when testing its soundness, the colour of the material changes momentarily at the points where it is struck. In many instances the change in colour would pass unnoticed, but in some it is so marked as to attract immediate attention. Joosting eventually found that the change in colour is due to the expulsion of a liquid by the impact of the hammer. The total quantity of liquid expelled is very small, but it is sufficient to form a stain which gradually spreads until, in some cases, it reaches to the edges of the brick and may

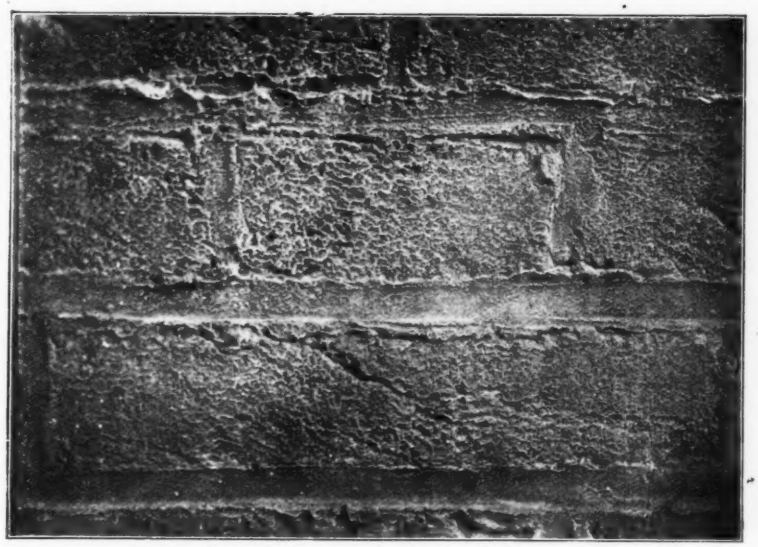


Figure one. Bricks immediately after hammer tapping.

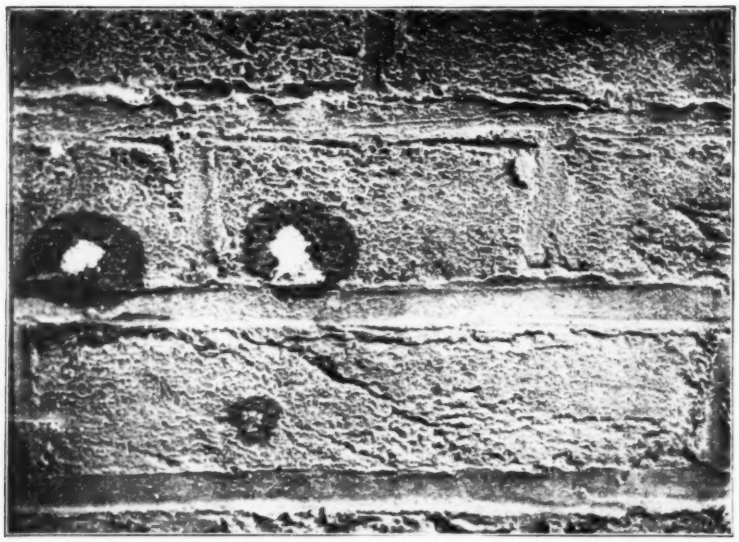


Figure two. Stains on bricks which occurred six minutes after hammer tapping.

even extend through a joint of cement-mortar into an adjacent brick. In one instance examined by Joosting, the stains persisted through five weeks of hot, dry weather. Figure one shows two bricks which had been tapped by a hammer, the resulting stains being shown in figure two, which was photographed six minutes after the tapping. The stains show white in the illustrations, but actually they are rose-pink—a colour which shows up clearly against the grey-brown background of the bricks. Near the right-hand stain, a little loose pink powder may be seen. The tapping which caused the left-hand stain produced a horizontal strip of moist brickwork below the joint, which, in less than six minutes, had spread into the stretcher and the adjacent mortar, and ended at a crack through which water was escaping. On the stretcher below, an accidental blow from the hammer also produced a small, moist stain, its lesser size being due to the lighter impact. The stains gradually spread, as shown in figure three, which was taken twelve minutes after tapping. Sometimes, several small, dark lines in the form of a star appear immediately after the blow of the hammer; these lines gradually extend and form cracks through which the liquid escapes. It was observed that at two points close to a spot where crusts of carbonate of lime were present the liquid oozed out drop by drop and slowly flowed along the brickwork. It was later found that if the surface of the bricks was scratched with a pair of scissors to a depth of less than $\frac{1}{16}$ in., the effect was the same as tapping with a hammer, the edges of the scratch being marked by moist bands, and in one instance several drops of liquid oozed out. The origin of this peculiar phenomenon is probably to be found in a layer of osmotic cells filled with a saturated solution of lime and being in such a state of tension that a sudden blow or scratch is sufficient to liberate the liquid.

Figure four shows a remarkable phenomenon which occurred in a tiled shed used for slaking lime. The tiles were *in situ*, apparently sound and had shown no signs of leakage, when it was accidentally found that they were " as open as basket-work," and fell to pieces when lifted. The iron trusses in the roof were corroded by the same cause, and to such an extent as to make the building dangerous. This result was due to several causes—lime-dust, heat and cold, dryness and damp following each other alternately had, in less than a century, decomposed the well-baked

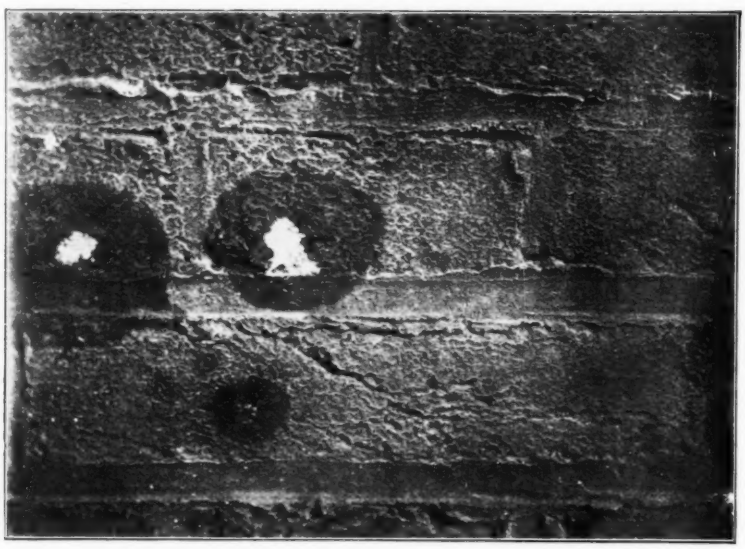


Figure three. The bricks twelve minutes after tapping.

clay of which the tiles were made! Lime, when slaked by hand so as to form a dry hydrate, produces much fine dust, which settles on the roof and elsewhere. When steam or moisture from the air condenses on this lime it dissolves some of it and the solution is absorbed by the tiles and the lime deposited in the pores. The moist deposit attracts carbonic acid from the air, forms carbonate of lime, and this dries under the influence of sun and air. When a

Figure four. A spalled tile.

further condensation of moisture occurs on the underside of the tiles, the adjacent pores are filled with lime-water, the walls of the pores being lined with a semi-permeable deposit of carbonate of lime.

If rain then falls on the tiles all the conditions are present for producing osmotic pressure. Rain-water enters the pores through the semi-permeable wall, lime-water cannot pass out, and so an osmotic pressure arises in the pores, the walls of which are ruptured and a small flake or scale separates from the tile. This process, repeated indefinitely, eventually destroys the tiles—a striking instance of the great effects which may result from an apparently trifling cause. Such an occurrence is capable, in time, of destroying the thickest walls, of causing irretrievable damage to towers and other public buildings as well as to those of lesser importance.

A further interest attaches to this matter, inasmuch as the destruction is brought about solely by lime and water, and is independent of such questions as the proportions of the ingredients in the mortar or the manner in which they are mixed together.

It cannot be too clearly understood that the presence of free lime in a mortar exposed to moisture may be the cause of scaling in the brickwork or masonry in which such mortar is used. Hence it is very important to fix the lime by using in the mortar a sufficient amount of pozzuolanic material, such as trass or finely-ground brick- or tile-dust. It has been shown, as the result of definite experiments, that two measures of Portland cement, when wetted, liberate sufficient free lime to combine with one measure of trass, but it has also been found in various structures in which cement and trass are used in these proportions, the quantity of trass is insufficient. It has also been found that an insufficiency of trass may actually aid the formation of efflorescence or wall-white instead of preventing it. This has been proved in the construction of the Maas-Waal Canal, in which the author has succeeded in applying the ancient Roman method of building to modern tamped concrete.

Knowing, from experience, the dangers which may arise if too little trass or pozzuolanic materials is used with Portland cement, the author always prescribes equal measures of these materials, though Hyner, at The Hague, has successfully used one part of cement with three-quarters of a part of trass.

Most English and American builders seem to be unaware of the fact that the addition of trass, or its equivalent, to a cement-mortar increases its plasticity and so makes it much easier to use. Very fine sand has a similar effect on the plasticity, and Hyner, who normally employs one measure of cement, three-quarters of trass, three of coarse river sand, and three of fine sand, has been able to increase the proportion of fine sand to four parts, making a mortar containing one part of cement to seven of sand without the bricklayers raising any objection to its use. In other words, it seems both unnecessary and undesirable to spoil cement-sand mortar by adding lime to it in order to make it more plastic: trass or fine sand will produce the desired effect without the other disadvantages which accompany the use of free lime in mortar.

The construction of floors of Sorel cement in such a manner that no cracks are formed is very important, and yet it is seldom realized, merely because the origin of such cracks and the best means of preventing them are not fully understood. The author, as a result of many trials and investigations, has found how to avoid these cracks. The ordinary method of making such floors is to mix magnesia and sawdust in suitable proportions and then to mix it very roughly with a solution of magnesium chloride, using the latter as though it were only water and in such a manner that it is largely accidental whether the oxide and chloride are mixed in suitable proportions. Yet the latter is essential if an irreproachable floor is to be produced. The simplest means of determining the strength of the chloride and of ensuring as perfect a mixture as possible have still to be investigated as, at present, the aid of a chemical laboratory and an elaborate mixing plant appear to be essential to securing the best results. Numerous other investigations on mortars, plasters, and flooring materials are being made, and will be reported to the International Association in due course.

NEW INVENTIONS

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

LATEST PATENT APPLICATIONS

34237. Bohac, K. Joint connections of rods, girders, &c. December 17.

33514. Carson, N. B. Reinforced concrete structures. December 12.

33573. Dutfield, A. E. Glazing channels for window, &c. frames. December 12.

34015. Garratt, H. H. Glazing bars. December 15.

33551. Jones, D. Palmer. Means for connecting tubular scaffolding.

SPECIFICATIONS PUBLISHED

281901. Fawcett, Ltd., T. C., Fawcett, D. L., and Bottomley, A. E. Brick-pressing machines.

270336. Mulliez Frères et Cie. Process for the production of imitation marble veins in building and other materials.

281969. Neilson, T., and Marshall, J. Ventilating apparatus.

281914. Brooks, E. A. Apparatus for cooling, humidifying and washing air.

281889. Chittenden and Simmons, Ltd., and Gunnell, W. B. Concrete-mixers and the like.

ABSTRACT PUBLISHED

279741. Wilson, W., 11 West Regent Street, Glasgow. Making concrete blocks.

ACOUSTIC DESIGN OF CHURCHES

[BY F. R. WATSON]

NEARLY everyone at some time has had the discomfort of not understanding a speaker. And under this circumstance one promptly inquires why wires were not stretched or a sounding-board used to remedy the trouble. But these devices, according to modern science, are practically of no use, in spite of the fact that they are generally regarded as the means of correction. The acoustic adjustment of rooms is a subject of modern development, and became an acute problem when large auditoriums were built with steel and plaster constructions. As a result, only a few architects are informed concerning the scientific progress in the subject. Active progress in the acoustic adjustment of rooms has been stimulated by commercial companies, who have developed various products that have acoustic merit in greater or less degree. What is desired for ideal acoustics is that the sound reaching an auditor in any part of a room shall be of suitable loudness and distinctness for comfortable hearing, with an elimination or control of echoes, reverberation, " dead spots," and other faults. To a great extent it is possible to secure such ideal conditions.

In the open air the utterances of a speaker progress with practically no distortion, and perfect acoustics are obtained. But only a few people standing on the level ground around the speaker can hear him, because a large part of the sound proceeds upward and is lost, and the sound proceeding sideways is rapidly absorbed by the auditors' clothing. An auditorium improves this condition. A raised platform for the speaker allows all the auditors to see him and hear him. By means of a balcony the auditors at the outside edge can be brought nearer. The enclosing surfaces serve to reflect the sound going upward and thus increase the loudness for auditors in all parts of the room. While the auditorium thus produces some advantages, it also creates defects. For instance, the reflected sound, which is the chief difference between open-air acoustics and auditorium acoustics, may produce serious trouble, so that a study of its action is the most important consideration in obtaining good acoustics in a room.

Sound travels out in spherical waves from a speaker or a musical instrument with the great velocity of 1,120 ft. per second at ordinary temperatures—about as fast as a rifle bullet. As a result, sound will be reflected back and forth in an auditorium about thirty times a second between walls 40 ft. apart, and because of these rapid reflections will fill an auditorium of usual size in a small fraction of a second, thus ensuring a *loudness* in every part of the room. A speech sound, such as any one of the words uttered by a speaker, requires about one-tenth of a second for its completion, and travels 112 ft. before the word is finished, which means, in the open air, that a speaker would be at the centre of a sphere of 112 ft. radius that would be filled with the sound of the word. In an auditorium the sound waves would be reflected several times in travelling 112 ft. so that, instead of a sphere, there would be overlapping bundles travelling in every direction, that completely fill the room with the sound of the word before the speaker finishes saying it.

These overlapping sounds may produce confusion. For instance, sound is reflected from the wall behind the speaker in much the same way that light is reflected from a mirror; that is, the speaker has a fictitious image behind the reflecting wall that imitates his speaking. It is then the same as if two speakers said the same words at the same time. Imagine the effect on an auditor. If the two speakers are close together the effect is beneficial, but if far apart—as would be the case if the speaker were some distance in front of the reflecting surface—a blurring of speech sounds occurs and it becomes difficult to understand. Not only is sound reflected from the wall behind the speaker, but from all the other walls, so that an auditor listens, not only to the real speaker, but to a large number of fictitious speakers due to the reflecting walls. The possibilities of confusion are easily imagined (see figure one).

Modern investigation shows that walls at a distance of about 25 ft. or less from a speaker produce beneficial reflection of speech sounds. This shows the importance of having a speaker located near reflecting walls. Walls more than 25 ft. distant are sources of trouble, but, fortunately, their effect gets smaller with increasing distance, because the imaged speaker is now farther away from the auditor. If a wall, particularly a curved wall, is at some distance from the auditor, the reflected sound may arrive long enough after the direct sound to produce an echo—that is, a distinct, disturbing repetition of the direct sound. Reflecting walls that produce noticeable defects may be padded.

The most serious defect of reflection is the prolongation of sound in a room, called *reverberation*. When sound arrives at a wall or ceiling, it is reflected, absorbed and transmitted in varying amounts depending on the nature of the reflecting surface. A hard plaster wall, for instance, reflects 95 per cent. or more of the incident sound, and therefore absorbs but little, whereas a layer of hair-felt, 1 in. thick, may absorb 55 per cent. with a correspondingly smaller reflection. If a room is bounded by plaster, glass, and wooden surfaces, very little absorption takes place, and the sound may be reflected 200 to 300 times before it becomes inaudible. This means that the utterances of a speaker will overlap and produce confusion for listeners. What is desired is to have each utterance rise to a suitable intensity and produce its effect on the listener and then die out so as to leave the field free for the succeeding utterance. The use of carpets, hair-felt, and similar materials increases the absorption and furnishes the means for controlling the reverberation in a room. An audience is an excellent absorber of sound due to the clothing worn. In the winter time, when overcoats and heavier clothing are used, the absorption is greater than in the summer time. An auditorium filled with a large audience may be satisfactory, but it is

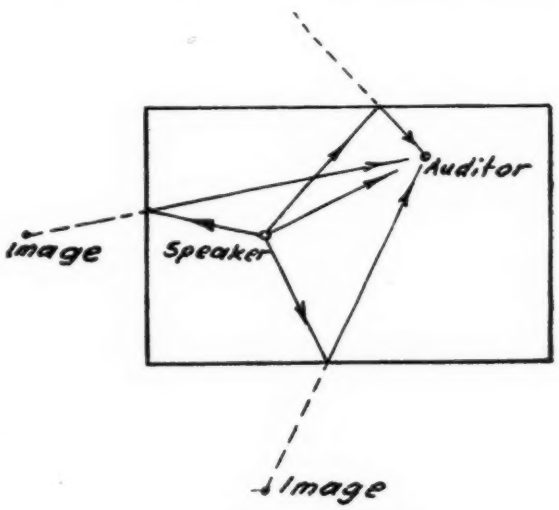


Figure one. Diagram showing real speaker and three image speakers, all saying the same words at the same time.

[*The above article is the substance of an address given, in Chicago, at a meeting of the Church Bureaux of Architecture and the Committee on Church Building of the Home Missions Council.*]

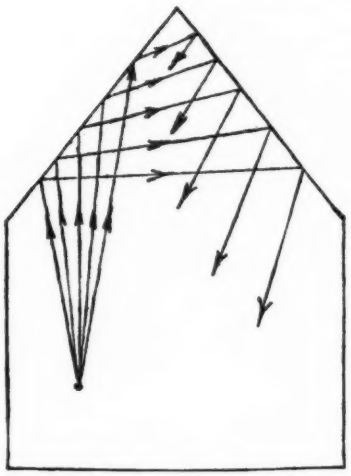


Figure two. Showing sound reflected twice from material in Gothic ceiling.

the modern practice to install absorbing material to avoid defective acoustics for small audiences or for rehearsals in the empty hall.

An all-important question arises as to the amount of sound-absorbing material that should be installed for good effect, and this has been answered by obtaining the opinions of auditors regarding auditoriums already possessing good acoustics. It is found for best effect that a standard sound should die out in two seconds or less, depending on the size of the auditorium. Calculations can then be made to determine how much material will be needed for the auditorium to secure the required time of reverberation. Having determined the amount of material needed for optimum acoustics, the question arises as to where it should be placed. Experience shows that some walls are more likely to give troublesome reflections than others. For instance, a rear wall may reflect sound to an auditor near the speaker and produce an echo; that is, a repetition of the direct sound that is noticeable. This result follows if the time interval between the direct and reflected sounds is about one-tenth of a second or more, for which the difference in path of the two sounds is at least 112 ft., and the reflecting wall is about 56 ft. distant from the auditor. With the wall at a greater distance the echo will be worse. If the reflecting wall is curved, which is often the case, a focusing action follows and the echo is more pronounced. To reduce this defect it is desirable to place sound-absorbing material on such reflecting walls, particularly those at some distance from the stage. This practice finds commendation for another reason. Experiment has shown that better acoustics are obtained if the walls about the speaker or musician are left reverberant while the absorbing material is placed on the walls nearer the audience. Under these circumstances the speaker or musician finds that it is " easy to speak or play," and the auditors find the listening satisfactory.

The shape of an auditorium is a matter of consideration. Generally speaking, a rectangular shape is preferred. Curved walls produce eccentric actions on sounds and may set up bad echoes. Balconies are usually advantageous acoustically, since they tend to break up sound in the otherwise large space. Gothic ceilings are beneficial to acoustics, because they reduce possibility of echoes, and because sound-absorbing material is more effective on such surfaces than on a flat ceiling. Large auditoriums are more difficult for good speaking than small ones. The reflecting walls are some distance from the auditors, with possibilities of echoes and blurring of speech. Electric loud speakers serve to amplify a speaker's voice, but they may produce some distortion. Music is an advantage in large rooms, more so than a speaker, because musical instruments have possibilities of greater volume of sound (see figure two).

Music requires the same acoustic adjustment of auditoriums for optimum conditions as speaking. Increasing the sound-absorbing material beyond the optimum makes the room deader, so that music sounds dry and lifeless, but the speaking becomes more distinct. If less sound-absorbing material is used than required for the optimum, music still sounds good, but speaking rapidly gets worse.

The important requirements for good acoustics in a room may be enumerated as follows:

1: The reverberation, or prolongation of sound, should be controlled by installing an amount of sound-absorbing material in proportion to the volume of the room.

2: The sound in a room should have sufficient loudness; a condition that is brought about by reflection from the various surfaces of the room which reinforce the direct sound. If the speaker or musical instrument produces only a weak sound no arrangement of the room will increase the loudness, except by the use of an electric loud speaker.

3: Speaking should be distinct. For this purpose it is desirable to arrange the reflecting surfaces near the speaker, and to apply absorbing material to selected walls.

ABSORBING COEFFICIENTS OF COMMON MATERIALS

	Coefficient per sq. ft.
Open window (absorbs all sound falling on it)	1·00
Hair-felt, 1 in. thick	·55
Plaster walls	·025 to ·034
Glass	·027
Concrete	·015
Varnished wood	·03
Carpets	·15 to ·25
Audience (per person, about 15 ft. of clothing)	4·7
Wood seat	·2

Inspection of this table shows why a room lined with plaster, glass, and wood is reverberant—the surfaces absorb but little and the sound will persist several seconds before becoming inaudible.

An all-important question arises as to the amount of sound-absorbing material that should be installed for good effect, and this has been answered by obtaining the opinions of auditors regarding auditoriums already possessing good acoustics. Before discussing the answer to this question, it should be stated that the reverberation depends also on the *loudness* of the sound and on the *volume* of the room; larger rooms, with the reflecting walls farther apart, will have a longer reverberation. These factors may be put into the statement: the time of reverberation t is directly proportional to the loudness of the sound and to the volume V of the room, and inversely proportional to the absorbing material a present. Putting this in the simplified equation, we get: $t = \cdot 05\ V/a$, where the factor ·05 represents a standard loudness.

As a simple example, take an actual room 148 ft. long, 57 ft. wide, and 23 ft. average height; the volume being approximately 194,000 cub. ft. The absorption a in the room is calculated from the coefficients in above table as follows:

Wood floor	8,436 sq. ft. at ·03	253 units
Plaster ceiling	8,436 sq. ft. at ·033	278 ,,
Plaster on tile walls	9,430 sq. ft. at ·025	236 ,,
1,000 seats	at ·15	150 ,,
Absorption for the empty room		917 ,,
Average audience (330 people)	at (4/·7-·15)*	1,500 ,,
Absorption with average audience		2,417 ,,

* When an auditor occupies a seat, its absorption (·15) is subtracted.

It should be noted that the absorption of the audience is nearly twice that of the surfaces in the room. This is due to the clothing worn. Continuing with the calculations, we get the time of reverberation for the empty room to be:

t (empty room) $= \cdot 05 \times 194{,}000/917 = 10 \cdot 6$ seconds;

and for the average audience:

t (average audience) $= \cdot 05 \times 194{,}000/2{,}417 = 4 \cdot 02$ seconds.

That is, a standard sound will persist 10·6 seconds in the empty room and 4·02 seconds with an average audience present. Comparing these results with those for auditoriums having good acoustics, it is found that the times are too long and that the

room will be too reverberant, so that sound-absorbing material must be introduced to make the reverberation less. For guidance in such installation, the following table of optimum values of the time of reverberation and absorbing material has been prepared:

OPTIMUM TIME OF REVERBERATION AND OPTIMUM ABSORPTION

Volume of Room	Optimum Time	Optimum Absorption
3,300 cub. ft.	1·0 seconds	165 units
12,900 ,,	1·1 ,,	585 ,,
33,000 ,,	1·2 ,,	1,380 ,,
63,000 ,,	1·3 ,,	2,400 ,,
117,500 ,,	1·4 ,,	4,200 ,,
186,000 ,,	1·5 ,,	6,200 ,,
276,000 ,,	1·6 ,,	8,600 ,,
407,000 ,,	1·7 ,,	12,000 ,,
550,000 ,,	1·8 ,,	15,300 ,,
750,000 ,,	1·9 ,,	19,700 ,,
1,000,000 ,,	2·0 ,,	24,800 ,,

Inspection of the table reveals one important fact, that the optimum time is short, not exceeding two seconds for an auditorium of 1,000,000 cub. ft. Defective auditoriums usually have too long a time of reverberation.

Apply these optima to the case of the room first described. The volume is 194,000 cub. ft., which would require an optimum time of about 1·51 seconds, and this will be obtained when approximately 6,420 units of material are in the room. Suppose optimum acoustics are wanted for a two-thirds capacity audience. The room already has 917 absorbing units for the empty room, to which should be added 3,000 units for a two-thirds audience, giving a total of 3,917 units. To this must be added 2,500 units to give the optimum of 6,420 units. If hair-felt is selected as the sound-absorbing material, the 2,500 units will require 5,550 sq. ft. (5,550 at ·55=2,500 units), which may be applied in panels on the ceiling. Summing up, the times of reverberation for the corrected room will be:

t (empty corrected room)	·05 × 194,000/3,420 = 2·82 seconds
t (with one-third audience	·05 × 194,000/4,920 = 1·97 ,,
t (with two-thirds audience) ..	·05 × 194,000/6,420 = 1·51 ,,
t (capacity audience)	·05 × 194,000/7,920 = 1·23 ,,

Optimum acoustics will be obtained for two-thirds audience, but the conditions will be good for the capacity audience and also for the empty room, when used for rehearsals and organ practice.

Caution should be exercised in taking the size of audience for the optimum. For instance, in the preceding example, if the optimum is taken for only one-third audience, the amount of sound-absorbing material needed will be 4,000 units, or 7,272 sq. ft. of material, thus increasing the expense of correction. The optimum values given in above table have been found satisfactory for audiences of from two-thirds to capacity. In case of doubt, it would be desirable to consult the acoustical engineer for the company whose material is to be used.

LITERATURE

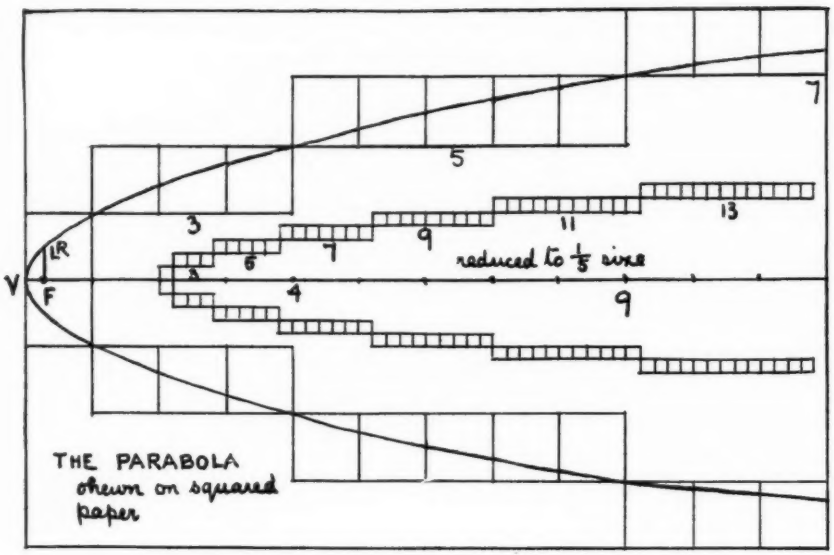
THE FUNCTION OF THE SET-SQUARES

MR. HARRY W. ROBERTS is a remarkable man. He has the mathematical and the practical mind combined, and both of them are enriched by imagination. To Mr. Roberts the ordinary set-square is an instrument of endless possibilities. No sooner is a problem put before him than his set-squares leap to its solution. And he has realized, and demonstrated, that our 45 deg. and 60 deg. to 30 deg. are only two valuable instruments out of a series, and that there are others with their own especial capacities and characteristics ready to do their part, not only in helping to achieve rapidity in draughtsmanship, but also to assist design. Too often our designs are conceived for the convenience of their draughtsmanship; and, perhaps, when 15 deg. and 75 deg., and Mr. Roberts's own pet angles, become a part of an ordinary drawing equipment, the business of designing mass and detail will receive a needed stimulus.

In Mr. Roberts's present book he deals chiefly with the geometry of those two old friends of the draughtsman, the 45 deg. and 30 deg. to 60 deg. But he shows us how to use them intelligently and how to save valuable time. Many of his hints may pass over his readers' heads, or at least out of their minds, but he awakens the reasoning faculty and makes drawing into something living and fascinating.

His chapters on the divisions of lines into parts, in conic sections, and in the drawing of curves are of especial interest and usefulness. His incursion into the delineation of the human figure is of less directly useful application. But if here his examples serve only to show the mathematical basis of form, it is something of importance accomplished.

The illustrations reproduced from Mr. Roberts's book give an idea of his subject-matter. In figure six, for instance, he shows how, with the 30 deg. to 60 deg. set-square, to find the one-seventh part of a given line. In figure sixty-seven—an illustration from his

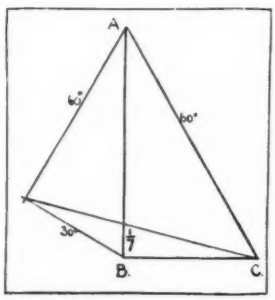


How the parabola may be studied and analysed on squared paper. [*From* The Function of the Set-squares.]

chapter on the construction of the parabola, a curve which is coming into its own important place in the sphere of architectural design—he shows how the parabolic curve may be studied and analysed on squared paper.

HOWARD ROBERTSON

The Functions of the Set-squares. R's Method of Using Ordinary Set-squares in Drawing and Design. By Harry W. Roberts. London: The Architectural Press. Price 6s. net.



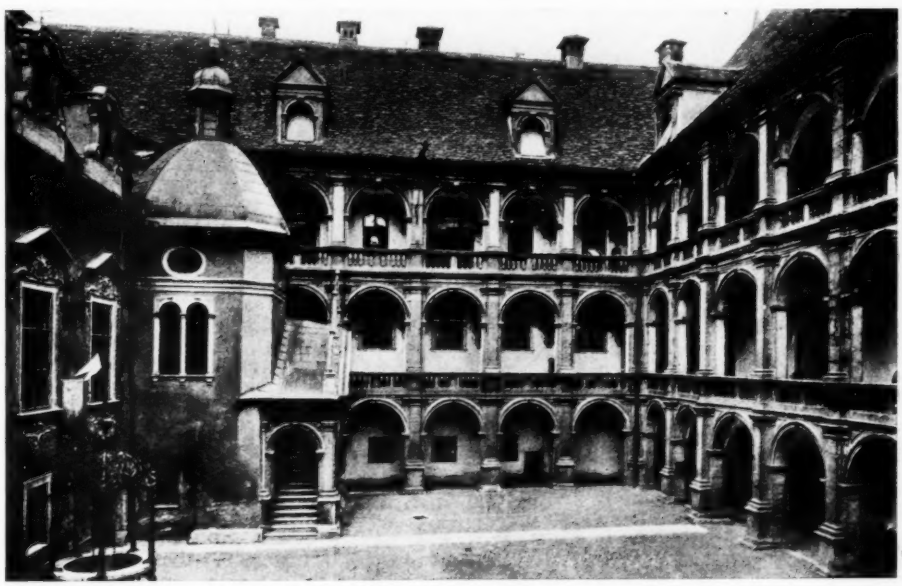
How to find the one-seventh part of a given line. [*From* The Functions of the Set-squares.]

GERMAN RENAISSANCE ARCHITECTURE

Alfred Stange adds largely to the knowledge of the building art of the Renaissance in Germany, and at the same time provides every reason why it should be more greatly appreciated than has been the custom. The old detestation of the rococo and baroque was responsible for the misconceptions of the past, but a more critical spirit now recognizes in those manifestations mere evolution and devolution. Not that Renaissance German architecture was largely baroque; it was no more so than Italian or Spanish, indeed less so. It has a character of its own, unshared by the French or Italian, by which it was, however, influenced. It is most accountable in its civic phase to the French; in its ecclesiastical to the Italian models; but in its domestic aspect it has a value all its own. Its individuality is Teutonic; it reveals the national characteristics of the solid comfort beloved by the well-to-do burghers of the towns, rich and solid, with a sound sense of beauty allied to utility and a nice application of material to place. The instinct for domestic architecture of a high order is manifested also in the provision of the almost ubiquitous fountain in the squares just outside the houses of the German cities. The faculty, widening itself, demanded fine civic and ecclesiastical structures, which, more ambitious, were made to emulate those already in existence elsewhere. It is to the credit, however, of the house-builders that they repudiated the pattern-books of ornament, both of their own country and those of Holland, in favour of their own individual tastes.

German Renaissance building was half a century behind France in developing from late Gothic into the classical style, and Germany retained its earlier characteristics for a longer period and evolved a style nearer to its own predilections. In spite of this, however, the Loire châteaux in their general features exercised the earlier foreign influence, but there were valuable native adjuncts. If the Schloss Hartenfels of Torgau is compared with the château of Blois, it is seen to be simpler, and the exterior staircase has a better setting. It was not until the middle of the sixteenth century that the real German Renaissance style reached its strength, and it flourished sedately until the end of the century, when it gave way to the extravagances of ornament, which speedily led to the baroque stage.

In no particular is it more comparable to the best French architecture than in its arcading and storied pilasters, as in the Graz Landhaus; the Münze, Munich; the Altes Schloss at Stuttgart, and the Gläserner Saalbau at Heidelberg, all most admirable examples. The gable roofs common to both countries were developed in Germany to an extent unattempted in France, and with the elaboration of the gable-end Germany secured a feature which is its most prominent characteristic, both in civic and domestic work. The gable-end and ornamental gable, useful as they were in breaking the monotony of the roof and giving variety to the horizontal line of the façade, led to undue extensions, and so to their artistic decay. There is, however, no doubt of the great structural and decorative beauty of the gable, whether stepped, as in the Hilgenhaus at Lorch; highly decorated, as in the Salzhaus am Römerberg at Frankfurt-on-the-Maine, or superbly plain, as in the Wederkindsches Haus at Hildesheim. Roofs lose their monotony by such treatment; and even a vast high-pitched one, as that of the Knockenaueramtshaus at Hildesheim, is made interesting by the gable-end treatment in all its essentially



Landhaus, Graz. [*From* Die Deutsche Baukunst der Renaissance.]

structural simplicity. It is in the half-timbered domestic work, however, that the national spirit emerges most successfully. Here there is no imitation, but the very essence of style due to the utilization of local materials. In many parts of Germany wood was the only convenient matter in bulk, the fillings being supplied from the claypits, either crude or as bricks, and by plaster. Wood was the basis of the structure and was used in very various ways, plain or decorated, and if there was any sophistication it was largely due to individual taste. In Halberstadt are many buildings in wood derived from the forests of the Hartz district, both plain and carved; the Ratskeller there is an admirable example of the former, while Hildesheim has an abundance of the latter.

The list of the towns in Germany affording examples of Renaissance architecture is a long one, rivalled only by that of the towns which have earlier remains in perfect preservation. Many of these places are world-famous, some are less well known, and among these is Braunschweig, which, in number seven of the Reichenstrasse, provides one of the finest examples of half-timbered domestic street architecture of the Continent. Its serried rows of flush windows contrast with the ornate dormers and oriels of the more elaborate structures. The richness of effect of these is compensated for in this case by the projecting stories with their simple but satisfying decorative carving.

Braunschweig is not exclusively given up to timber work, for the Gewandhaus in stone, with its arcaded ground floor and seven superimposed stories with many statues and other sculptural effects, is a striking example of the restraint which the Germans imposed on themselves, even when engaged in the exploitation of Italian models. Augsburg, Görlitz, Erfurt are among the other less well-known towns which furnish examples of the period, but, generally speaking, the great cities—Heidelberg, Munich, Nuremberg, Stuttgart, among them—provide the greatest developments and the extremes into which the style was committed, as the Zeughaus at Dantzig and the Schloss at Heidelberg.

The churches of the period are the least important in point of numbers. The early ones at Annaberg and Amberg are simple, as is that of Schneeberg and the Liebfrauenkirche at Halle, with their clean, aspiring, capital-less pillars and good vaulting. Later they became much more ornate with elaboration of detail and often some distinct confusion, as in S. Maria Himmelfahrt at Cologne, the Lutheran church at Bückeberg. The most Italianate of all the ecclesiastical structures of the German Renaissance is the Church of St. Michael at Munich, in which, unlike the smaller, earlier edifices, no trace of Gothic remains.

Alfred Stange has given an admirable account of his subject in this important book. The illustrations, many of them full-page, are a revelation of much beauty of a peculiar kind; beauty which for too long has been disregarded and even sniffed at. That attitude cannot be held longer in face of this exposition.

KINETON PARKES

Die Deutsche Baukunst der Renaissance. By Alfred Stange. Munich: Hugo Schmidt Verlag. La. 8vo., pp. 204, illus. 132. Price 20 marks.

HOW TO USE THE SLIDE RULE

A working knowledge of the slide rule is easily acquired by a study of *Instructions for the Use of A. W. Faber "Castell" Precision Calculating Rules*, by Henry O. Cooper, and the examples given will provide practice to enable the rule to be used to the best advantage. The author begins by describing the construction of the "Castell" calculation rules, after which he gives a brief explanation of logarithms, for the assistance of those who are not familiar with this branch of mathematics. Then he describes the slide rule scales and proceeds by the use of examples to coach the reader in the use of the slide rule for multiplication, division, proportion, reciprocals, squares, square roots, cubes, cube roots, and logarithms. In the chapter on applications the author points out that "with slide-rule working the fewer the movements of the slide the more accurate will the answers be, so it is almost worth while considering a problem, before calculating, to ensure of its being done in the shortest possible way," and proceeds to prove his point by working out a number of examples, including the calculation of timber. The use of the digit registering cursor, the log-log scale, efficiency and voltage drop scales are also described. The book can be obtained from the London agency of Messrs. A. W. Faber, 13-14 Camomile Street, E.C.3, price 2s. net.

Ratskeller, Halberstadt. [*From* Die Deutsche Baukunst der Renaissance.]

LAW REPORTS

DILAPIDATIONS: SURVEYOR'S AWARD

Lower Lausslon Clay Co. v. *Higman. King's Bench Divisional Court. Before Justices Sankey and Talbot*

In this case the plaintiffs appealed against an award made by Mr. H. S. Hancock, a surveyor, of St. Austell, Cornwall, a special referee, in an arbitration. Plaintiffs claimed £224 for dilapidations from the defendant, who, in turn, claimed to be indemnified by the third parties, the Western Counties Clay Company. The referee reduced the claim to £197 8s. 9d. and entered judgment for that amount against the third parties. Plaintiffs now asked that their judgment should be entered against the defendant, Mr. Higman, who was their lessee, and not against the third parties.

Mr. Murphy, for the plaintiffs, said the dispute centred round some land which his clients had leased to defendant for the purpose of making mercantile china clay, and defendant had sublet the land to the third parties. It was alleged there had been a breach of the licence through a failure to repair pits and pipes. Defendant claimed to be indemnified by the third parties. His submission was that the referee had no jurisdiction to take the short cut of entering judgment against third parties.

A cross-appeal against the finding was entered by the third parties, and Mr. Pratt, who appeared for them, said they wished to call evidence on the matter of dilapidations. They had paid £60 into Court. He stated that the cross-appeal was out of time, but he asked the Court to extend the time.

The Court upheld the referee and entered judgment for plaintiffs for £197 against defendant, and held that he was entitled to be indemnified by the third parties. They refused to extend the time to the third parties for appeal.

PRESENT-DAY TRAFFIC. RECONSTRUCTION AND MAINTENANCE OF SUITABLE ROAD

Manchester Corporation v. *Audenshaw Urban District Council. Chancery Division. Before Mr. Justice Eve*

This case raised a novel point as to the liability for the reconstruction and maintenance of a road suitable for present-day traffic.

Sir Herbert Cunliffe, K.C., for the Corporation, said they sought the opinion of the Court as to the measure of their obligation for the maintenance of Corporation Road (substituted for Taylor Lane in 1878) in the districts of Audenshaw and Denton. They said it was limited under the Manchester Corporation Waterworks and Improvement Act, 1875, and they had only to maintain a road sufficient for the ordinary traffic at the time the new road was made. The case of the U.D.C. was that the traffic had greatly increased, particularly in heavy motors, and what the Corporation was liable for was the reconstruction and maintenance of a road suitable for present-day traffic.

His lordship, after hearing Mr. Scholefield for the defendants, held in favour of the Corporation. The defendants had urged that it was no answer to their suggestion that the road should be brought to its original state to say that it might be destroyed within a space of time out of all proportion to the expenditure incurred. But it was to be observed that no Court would compel extravagant and wasteful expenditure. On the evidence, although the road had not been so demoralized as to be incapable of repair without fundamental reconstruction, the Court was satisfied that some reconstructive work of surface and foundations alike would be called for. The fact that the road had been and was still being used and that present-day conditions were such as to render the obligation to maintain as in 1878 of no practical use did not operate, the Court held, to free the plaintiffs from all liability to contribute to the cost of repair. The Act imposed on the undertakers the burden of maintaining the road as at that time constructed, but not so as to make it available for traffic wholly dissimilar from that for which the specifications were framed. What the Corporation had to maintain was the fabric of a particular road of which the size and character was determined by the Act, and there was no principle of construction by which the obligation to maintain a particular fabric could be enlarged into an obligation to reconstruct in a state differing in size, nature, and character from the original road.

He made a declaration that the liability of the Corporation was only to maintain Corporation Road in the condition in which it was contemplated in April 1878, and entered judgment for the plaintiffs on claim and counterclaim, with costs against the defendants. Further, he gave leave to the defendants to apply for an inquiry as to any contribution they might allege ought to be made by the plaintiffs to the cost of reconditioning the road and generally.

FLOOD DAMAGE

Scholes and Sons, Ltd. v. *The Calico Printers Assoc. Court of Appeal. Before Lords Justices Scrutton, Atkin, and Greer*

The defendants appealed in this case from a judgment of Mr. Justice Acton at the Manchester Assizes in favour of the plaintiffs, who are bleachers and finishers of the Albert Works, Radcliffe, awarding them damages for injurious affection by flooding.

Sir Walter Greaves Lord. K.C., for the appellants, said the plaintiffs purchased their premises from the defendants, and the flooding alleged came from culverted waterworks passing under the factory of the plaintiffs. Mr. Justice Acton found that there had been negligence on the part of defendants and a breach of covenant for quiet enjoyment. Defendants' contention was that the culverted works were there by the consent of plaintiffs under the deed of purchase which excluded liability for the damage that occurred. They said that if there was a duty on them there had been no negligence on their part. The watercourse that ran into the culvert drained a large area, and then ran under plaintiffs' premises. During the early morning of October 8, 1926, after a very heavy fall of rain, the plaintiffs' factory was flooded and considerable damage done to cloth and in other ways. Counsel contended that defendants were only responsible under the agreement for avoidable damage, and nothing more.

The Court dismissed the appeal, with costs, without calling upon Mr. Cyril Atkinson, K.C., for the respondents.

Lord Justice Scrutton, in giving judgment, said he was inclined to think that the appellants were negligent in not cleaning out the culvert from time to time. It was quite true damage had previously been caused, but it was extremely probable that the miscellaneous obstructions which ultimately choked the culvert were accumulating over a long period. But he did not decide the case on that point, he decided it on the ground that the appellants were bound to see that the water did not escape from the artificial channel which had been constructed to deal with the water as it accumulated.

Lord Justices Atkin and Greer agreed.

ACQUISITION OF PREMISES: IMPORTANT DECISION

Greswolde-Williams v. *Newcastle-upon-Tyne Corporation. Chancery Division. Before Mr. Justice Clauson*

This action raised an important point in regard to the acquisition of property required for public purposes.

The plaintiff sought a declaration that the defendants were not entitled to serve on the plaintiffs a notice to treat for the compulsory acquisition of part of a large structure, owned by the plaintiffs and let out to various tenants, on the ground that the whole structure was one building for the purposes of section 92 of the Lands Clauses Consolidation Act, 1845.

The defendants were given power, under the Newcastle-upon-Tyne and Gateshead Corporations (Bridge) Act, 1924, to acquire compulsorily certain land and buildings for the purpose of the construction of a bridge over the River Tyne. The Act incorporated the provisions of the Lands Clauses Consolidation Act, 1845, except section 127.

Section 92 of the Act of 1845 provided that no party should be required to sell to the promoters of an undertaking a part only

of any house or other building or manufactory if such party were willing and able to sell and convey the whole.

Mr. Conway, K.C., for the plaintiff, said the premises were known as Princes Building, and appeared from the outside to be one large building: but the defendants, on July 19, 1926, served the plaintiffs with notice to treat for the compulsory acquisition of that part of Princes Building numbered 130 on a certain plan, as they contended that that was a separate house or building within the meaning of section 92 of the Act of 1845. The question of the value of the part the defendants desired to acquire, and also of the whole structure, was submitted to arbitration. On February 28, 1927, the arbitrator valued No. 130 at £12,300, and the whole structure at £58,580. The plaintiffs' case was that No. 130 was part of the whole building, and that under section 92 the defendants were bound to take the whole.

After hearing Mr. W. A. Greene for the Corporation,

His lordship, in giving judgment for the defendants, said the contention of the Corporation was that No. 130 on the plan was a house or building which, though no doubt physically continuous with other buildings, the sum total of which was known as Princes Building, was in fact separate from the whole building. The question was whether No. 130 was a distinct building. If it were not, no party had argued that it was anything other than part of Princes Building. There was some authority that he was entitled to construe section 92 of the Act of 1845 in a liberal manner, yet he must do so reasonably and fairly, having regard to the fact that the section was evidently intended to give a certain protection to landowners who had their property taken from them against their wishes. The question was partly one of structure and partly one of the user of the building. He came to the conclusion that there was nothing to show that any house in the building which had been let had ever been treated as a separate unit. The plaintiffs had administered the building as a whole and had let off rooms for use as offices. Architecturally it was one structure, which had been administered as one unit and one structure. The conveniences, water, and drainage had been planned on the footing of that unity. Taking all those factors into consideration, and the fact that there was evidence to show that there was sufficient intercommunication between the divisions in the building, it seemed that the building was one for the purpose of section 92. If that were so, the question how much worse off the plaintiffs were by the truncation of that part of the building for which the defendants served notice to treat ought not to be considered. He held Princes Building to be a single building, and the result would be that the Corporation were bound to take the whole of it if the plaintiffs so desired, and he made a declaration to that effect.

GOOD REPAIR AND CONDITION. QUESTION OF OUTSIDE REPAIR

London Holeproof Hosiery Co., Ltd. v. *Padmore. Chancery Division. Before Mr. Justice Tomlin*

This was an action raising an interesting point on the question of outside repair, where a lease was silent on the point.

The plaintiffs claimed from the defendant damages for alleged breach of contract, and in the alternative sought a declaration that the plaintiffs were not bound to proceed with the purchase of a factory. Plaintiffs also asked for the return of the deposit they had paid. Defendant counterclaimed for an order for specific performance.

Mr. C. A. Bennett, K.C., and Sir Arthur Underhill appeared for the plaintiffs, and Mr. Christie for the defendant.

It appeared that defendant demised to plaintiffs in August 1925 a piece of land and fitted factory and machinery at Woodgate, Rothley, Leicestershire, for three years at £60 per annum. The agreement contained a provision that the plaintiffs should keep in good repair and condition at all times during the term the inside of the factory and premises. The agreement was silent as to the keeping in repair of the outside of the factory and as to keeping it insured. It contained an option for the plaintiffs to purchase the factory and premises on or before June 24, 1927, at the price of £1,600 on giving to the defendant six months' notice in writing and paying a deposit of £160 and all arrears of rent up to the date fixed for completion. In November 1926, the factory was almost completely destroyed by fire. The factory was insured by the defendant against fire and he received the sum of £625 from the insurance company. Questions then arose as to repairs and correspondence followed between the solicitors, and ultimately the plaintiffs' solicitors wrote the defendant that their clients would exercise the option to purchase and pay a deposit of £160. The plaintiffs' solicitors added in their letter that it was, of course, necessary for the building to be placed in proper repair by the defendant at the earliest possible moment, and pointing out that the plaintiffs were having the freeholds of the property when reinstated by the defendant. The defendant's solicitors replied on December 22:

"In reference to your suggestion that the building should be placed in proper repair by our client we can only say this is a misconception of the position. Your clients in exercising the option take the property in its present state subject to and with the benefit of the tenancy agreement, which contains no covenant on our client's part to repair."

Plaintiffs' solicitors replied that there had been no misconception on their part.

His lordship, after long legal arguments, found that the action failed and dismissed it, with costs, and allowed the defendant's counterclaim for specific performance. He came to the conclusion that the effect of the letter of December 22 was to inform the plaintiffs that the defendant repudiated any suggested liability to reinstate the premises, and it might well be that the plaintiffs might then have said that in that case the exercise of the option could not stand, because it was based on a misapprehension. That was not the course the plaintiffs took, but, on the contrary, their solicitors wrote a letter of December 30 putting forward their view of the construction of the contract. Later on, they made a requisition that the insurance money should be applied in reinstating the property. The transaction was not unprofitable to the defendant if the plaintiffs were wrong in their view. The defendant was selling a damaged article for the price of the perfect article, and at the same time, he was putting in his pocket money paid to him by the insurance company to indemnify him against his loss. But he (his lordship) was only concerned with the legal position. At one point the purchasers could have said that they exercised the option under a misapprehension, but they did nothing of the kind. They elected to go on, relying, first, on the defendant being bound to reinstate the property, and, secondly, on the insurance money being applicable for the purpose. They must be taken to have gone on relying on their view of the construction of the contract. Could they at a later stage repudiate the contract? It seemed to him that they were too late. Further, there was no ground for the view suggested that one side thought that they were buying one thing and the other that he was selling another. Both sides thought that they were dealing with the damaged property, but the plaintiffs thought that they could make the defendant put it right, in which view they were mistaken.

NEEDED FOR IMPROVEMENT PURPOSES

Bradford Corporation v. *Public Trustee. Chancery Division. Before Mr. Justice Tomlin*

The Bradford Corporation applied to the Court for a declaration that they were entitled to purchase a yard at the rear of 72, 74, and 76 White Abbey Road, Bradford, as they desired to use the space for public improvements.

Mr. C. E. Harman appeared for the Corporation, and Mr. Beaumont for the Public Trustee.

Mr. Harman stated that the Corporation were authorized by the Ministry of Health to carry out a scheme for the improvement of the White Abbey Road area. The necessary notices were served on the owners of 72, 74, and 76, and they had come to terms with them, but a difficulty had arisen as to title by reason of the fact that between two or more of the houses that were being acquired there was an open yard over which the owners of the houses had rights of way. He submitted that under the provisions of Part V

of the First Schedule of the Law of Property Act, 1925, the yard was now vested in the Public Trustee as an open space. The Corporation therefore asked for a declaration to that effect and authority for the Public Trustee to sell the yard and land to them. The question turned upon the meaning of the term " open space " in this section of the Act, and he contended that in ordinary language it meant an " open space " unenclosed.

Mr. Beaumont took the view that the words meant land unbuilt upon.

His lordship made the declaration as asked, subject to any rights that might exist in persons other than the applicants. He came to the conclusion that he must put upon the words " open space " their natural meaning unless he could discover something in the schedule to the Act which restrained or expanded its natural meaning. He was unable to put any meaning upon the words which would exclude this particular piece of land, the essential quality of which was that it was unbuilt upon.

ANCIENT LIGHTS

Plumley v. *Hodges. Chancery Division. Before Mr. Justice Clauson*

This was an action by Mr. C. Plumley, who conducts a dental surgery at 93 Whitelands Road, Clifton, Bristol, against the defendant, Mr. Joseph Hodges, a florist, next door to him, for a declaration that he was not entitled to erect a shop wall in such a way as to interfere with the plaintiff's ancient lights. Plaintiff also sought a mandatory injunction to pull down and damages.

Mr. Farwell, K.C., and Mr. N. Daynes, appeared for the plaintiff, and Mr. Archer, K.C., and Mr. Adam for the defendant.

Mr. J. R. Ware, the plaintiff's solicitor, gave evidence for the plaintiff.

For the defence, Mr. G. R. Morgan expressed the opinion that the wall did not obstruct the plaintiff's light. No direct light was affected. Mr. F. A. S. Goodboy, of Messrs. Sturge and Sons, Bristol, said he could read in the waiting-room of plaintiff's house and also read a private card in the hall. As a private dwelling-house its value was not depreciated by the erection of the wall.

His lordship found in favour of the plaintiff, refusing the injunction, but giving plaintiff thirty guineas damages, with costs. His lordship said he had no evidence of the efforts made to keep clean the skylight through which light entered a basement room, and he did not attach much importance to the statement that it was thickly encrusted with dirt. He thought the wall was affecting the light and producing such interference with the frontal light, through skylight and French window, as to cause material inconvenience to those who occupied this room in the ordinary occupations of life. Plaintiff had shown his legal rights had been infringed, but the Court did not think that the inconvenience was such that it need interfere with the defendant in the erection of this wall. To build this shop was a perfectly reasonable thing to do, having regard to the way the neighbourhood was developing. Glass with prisms, mirrors, and so on, would amply compensate the plaintiff for any injury which had been done.

COMPETITION CALENDAR

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

January 11. Senior Boys' and Girls' School, Loughborough, for the Education Committee. Assessor, Mr. Fred Broadbent, F.R.I.B.A. Premiums: £100, £50, and £25. Particulars from Mr. E. A. Jarratt, Secretary, Education Offices, Loughborough.

January 31. Municipal Offices, Shops, etc., in Narrow Street, Peterborough, for the City Council. Assessor: Sir R. Blomfield, R.A. Premiums: 500 guineas, 250 guineas, and 150 guineas. Particulars from Mr. W. H. A. Court, A.M.I.C.E., City Engineer and Surveyor. Deposit £1 1s.

March 10. Senior School at Kirkdale, Southport. Assessor, Professor S. D. Adshead. Premiums of £100, £75, and £50. Particulars from Director of Education, Municipal Buildings, Southport. Deposit 10s. 6d.

March 30. Municipal College of Technology, Manchester, extension. Assessors: Messrs. Alan E. Munby, H. M. Fletcher, and Francis Jones. Premiums: £500, £400, and £300. Particulars from Mr. P. M. Heath, Town Clerk.

CORRESPONDENCE

BADMINTON COURTS

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—Mr. Edward R. Bill did not touch on the *lighting* of " inside " Badminton courts in his interesting article. It is, however, important that consideration should be given to this, whether the lighting be natural or artificial. The player, about to make a stroke, may be seriously incommoded by a misplaced light, when following the flight of the shuttle. In the case of artificial lighting, possibly some " indirect " form would be best, provided it is arranged so that no part of the court (including the area above to a height of, say, 6 ft.) is left unshaded. As regards natural lighting, windows disposed on either side of the court, in alignment with the central net, would perhaps be least disconcerting. Overhead lighting suggests itself, but this may be confusing to the player who has to deal with high " lobs."

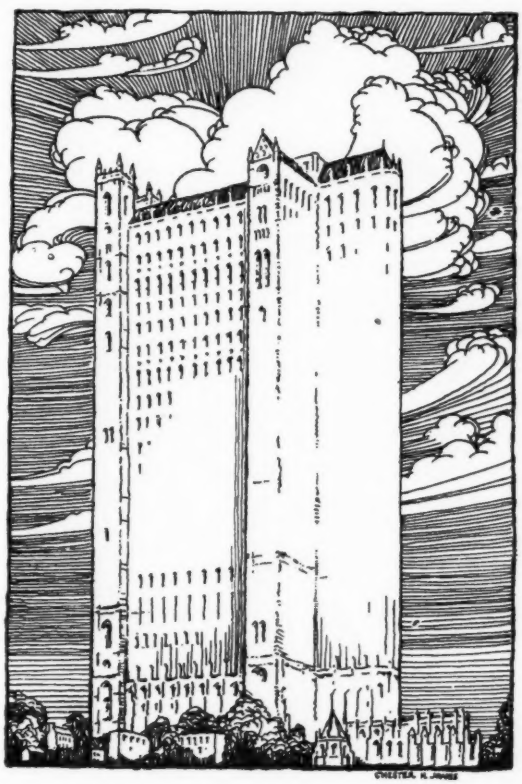
EDWARD C. TASKER

WESTMINSTER ABBEY

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—The accompanying sketch shows a suggestion for the extension of Westminster Abbey inspired by my recent arrival in America.

CHESTER H. JONES



ART IN THE PUBLIC SERVICES

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—Much criticism and general interest have been evoked by the new coinage. Is it not true that the whole question of design in such matters should be subjected to more critical scrutiny? The new coinage has been settled, and the discussion of its merits or defects is now of little avail. Even more important is the possible revision of the design of postage stamps and Treasury notes. It is not sufficiently realized that foreigners and visitors judge us very largely by such external symbols which come

immediately under their notice, and that our reputation for backwardness in industrial design is a serious disadvantage to us in trade. The Paris Exhibition of Decorative Arts showed that England is too much in a "backwater" and also what an actual commercial asset the French and Swedish, for example, have made of their artistic enterprise.

The Government, as the largest employer and patron, could do much to set an example. There has been one outstanding example of official intelligence in such matters, and that was when a designer was allowed, without any restrictions being imposed, to design the symbol that became associated with the British Empire Exhibitions and appeared on our postmarks, although it was carefully excluded from the special exhibition postage stamps, namely, the Wembley lion (to give it its popular title), designed by Mr. Herrick. All questions of the design should be treated in the spirit that actuated those in authority when they allowed Mr. Herrick to design the Wembley lion. It is essentially a matter for those of proved competence, and official ignorance or suspicion of really able designers has placed Great Britain far behind Europe in many other spheres than that of coins and notes. It is this over-cautious and unenterprising attitude which, in the opinion of this Association, reacts so unfavourably on the prospects of British industry.

M. E. THEYSEY, Secretary,
Design and Industries Association.

LONDON REBUILT, 1897-1927

To the Editor of THE ARCHITECTS' JOURNAL

SIR,—Having read with great interest the article in your JOURNAL by Professor C. H. Reilly, I would like to take this opportunity of acquainting your readers with the fact that I am not an architect, and have absolutely no knowledge of or connection with that profession. As *London Rebuilt* is my first effort in the literary line, I have scarcely even any claim to be called a writer, and it is my great love for our famous city which inspired me to produce this work upon the great changes which have taken place in London during the past thirty years. I quite agree with the contention of Professor Reilly that I am in no way qualified to express any opinion upon London's various buildings from an architectural point of view, but my judgment is solely based upon my individual opinion as to the effect which they exercise upon what I might for want of a better word call "the urban scenery," or general appearance of the street as a whole as it might appear to any casual observer or stranger to London. As my book is a general survey, and does not profess to specialize in any one direction, it is equally open to criticism from the standpoint of the builder or the contractor since I am also not qualified to enlarge upon the merits of the materials used on the construction of the new buildings. Yet despite its limitations, which I submit are more or less inevitable if such a work as *London Rebuilt* is attempted by one man only, I feel no regret at having produced this book, and I might add that to undertake such a work in a detailed fashion to include all of the architectural and constructional features, as well as the town planning, the traffic reform, and historical aspects of the question would, in order to do justice to the claims of all parties concerned, require not one writer, but a whole series of authorities and specialists involving sufficient material to fill several volumes instead of one only.

HAROLD CLUNN

ANNOUNCEMENT

The R.I.B.A. Statutory Examinations for the office of District Surveyor under the London Building Acts, or Building Surveyor under Local Authorities, will be held at the R.I.B.A., London, on May 2, 3, and 4, and on October 17, 18, and 19, 1928. The closing dates for receiving applications for admission to the Examinations, accompanied by the fee of £3 3s. 0d., are April 11 and October 1 respectively. Full particulars of the Examinations and application forms can be obtained from the Secretary, R.I.B.A.

A NEW MONASTIC BUILDING AT CLEWER

The general contractor and sub-contractors for the Convent of St. John the Baptist, Clewer, illustrated on pages 9 to 14, were as follows: General contractor, Mr. H. D. Bowyer, Slough; Mr. Blackwell, foreman; price per foot cube, 1s. 9d. Sub-contractors: Limmer Trinidad, asphalt; Collier's, Reading, bricks; Bath Stone Firms, stone; Veronese, plaster and artificial stone; Redpath Brown and Co., Ltd., structural steel; J. Mathews & Co., slates; R. E. Pearse & Co., patent glazing; Marbello Company, patent flooring; Falkirk Iron Co., central heating, gasfitting and boilers; Waring, Withers, and Chadwick, electric wiring, electric light fixtures, electric heating; Stuart's Granolithic Company, stairtreads; Comyn Ching & Co., door furniture; R. E. Pearse & Co., casements; Waring, Withers and Chadwick, bells; Grosvenor Electric Light Co., telephones; Portsmouth Water Company, sanitary fittings; H. Maxted, iron staircases; Bridgeman and Sons, Lichfield, church fittings; Smith and Sons, Derby, clocks.

OBITUARY

Mr. H. J. Birnstingl

On December 19, 1927, there passed from our midst an architectural journalist of much achievement and even greater promise. Cut off at the early age of thirty-five, Mr. Harry Joseph Birnstingl, A.R.I.B.A., lacked time and physical strength to reach the ultimate goal towards which already his really remarkable talent as a writer had set him well on the way. Trained in the A.A. schools, whence he duly graduated as Associate, he wrote with the knowledge and discrimination of a competent architect, and not as the scribes. In fact, it would not be easy to name an architectural journalist of comparable skill and experience. To recall the variety and extent of his writings is to marvel not only at the courage and fortitude with which during so many weary and almost hopeless years he fought manfully against insidious disease, but also to wonder at the skill and mental vigour with which he dealt in turn with every professional topic that came to his hand.

No department was beyond his scope. Just, impartial, and withal broadminded and tolerant as a critic, he was also an astute and scrupulously fair judge of values in buildings as well as books. Also he was an astute judge of public affairs as they affect the profession of which I deemed him to be a most useful member, notwithstanding that the fates had decreed that he should serve it mainly by offering soundly judicious comment on the building work of others. How well he served it with his prolific and always impartial pen, his innumerable articles, signed or unsigned, that have been for many years a constant and valuable feature of this JOURNAL bear abundant and convincing witness.

Without exception, they have been marked by honesty and independence, of well-considered opinion, by forthright style, and, more often than not, by a pungent flavour of pleasantly ironic wit and humour, neutralizing any tendency to dry-rot possibly inherent in the substance of the subject.

It is many years since H. J. Birnstingl, then a newly demobilized second-lieutenant, proud of the khaki he was still permitted to wear, and looking a very youthful, but very soldierly figure, took service in our office as an assistant editor. We found him a worker of enormous energy and cheerful willingness. Speedily he became familiar with the office routine. Architect, soldier, editor, he combined mastery of detail with a *flair* for military precision and a capacity for organization that seems referable to all three professions. But it will be understood to be chiefly on personal grounds that I deplore the untimely loss of an esteemed colleague, faithful friend, and loyal comrade.

THE WEEK'S BUILDING NEWS

Plans passed by the PUTNEY B.C.: Twenty-two garages, Putney Bridge Road, for Messrs. W. Brown and Sons (Builders), Ltd.; three shops, Upper Richmond Road, for Messrs. G. W. Beattie, Ltd.

*

Plans passed by WANDSWORTH B.C.: Alterations and additions, Country House public-house, Groton Road, for Mr. N. Parr; alterations and additions, Grove Hospital, Tooting Grove, for Messrs. L. Kazak, Ltd.; factory and offices, Merton Road, for Messrs. Walter Lawrence and Son, Ltd.; alterations, Royal Standard public-house, Podmore Road, for Messrs. Bleach and Dorey, Ltd.

*

Plans passed by the CLAPHAM B.C.: Alterations, Duke of York, Larkhall Rise, for Messrs. Charrington & Co., Ltd.

*

Plans passed by the PRESTWICH U.D.C.: Garages, Dickworth Road, for Messrs. Molyneaux and Rothwell; shop, Orange Road Hill, for Mr. J. Milligan; house, Danesway, for Messrs. Ambler and Waite; twenty houses, Butterstile Lane, for Messrs. G. Benson and Son; shops and other buildings, Whittaker Lane, for Co-operative and Industrial Society, Ltd.

*

The Lancashire Education Committee is to erect an elementary school for 1,000 scholars at PRESTWICH.

*

The BEXHILL Corporation has purchased a site in St. George's Road for a housing scheme.

*

Mr. D. Tebbitt is submitting to the PRESTWICH U.D.C., plans for the erection of a cinema dance hall and shops on a site in Bury New Road.

*

The SEDGLEY U.D.C. has asked the estate manager to prepare plans for the erection of shops in Bilston Street and Clarence Road.

*

Plans passed by the CROYDON Corporation: Four houses, Worple Road, for Messrs. Worsfield & Co.; shops and offices, High Street, for Mr. C. H. Ridge; twenty-two houses, Springfield Road, for Mr. R. Pierson; bank, 84 Westow Hill, for Messrs. Parr and Sons; petrol depot, Selsdon Road, for National Benzole Co., Ltd.; four houses, Grange Gardens, for Messrs. C. Midmer and Son; four houses, Running Horse Hill, for Messrs. Hookers and Rogers; two garages, London Road, for Messrs. W. T. Ricketts and Son; two blocks of flats, Lower Addiscombe Road, for Messrs. Hendry and Schooling; sixteen houses, Carolina Road, for Messrs. J. T. Keen and Sons.

Plans passed by the CARLISLE Corporation: Four houses, Dalston Road, for Mr. G. Armstrong, architect; two houses, St. Aidans Road, for Mr. H. Foxall, architect; two bungalows, Crown Road, for Mr. H. E. Scarborough, architect; additions, 19-21 Garden Street, for Messrs. Tiffen and Irving; additions, Caldewgate, for Messrs. Carr & Co., Ltd.; shop and house, Blackwell Road, for Mr. S. W. B. Jack, architect; two houses, Cross Street, for Mr. H. H. Hodgkinson, architect; shop premises, Blackwell Road, for Mr. H. Foxall, architect.

*

In connection with the proposals for modernizing the cattle market and abattoir at ISLINGTON, the City of London Corporation proposes the appointment of a deputation to visit modern markets and abattoirs.

*

The WAKEFIELD Education Committee has submitted plans for a new elementary school on the Snapethorpe to the Board of Education for approval.

*

The WAKEFIELD Corporation has had plans prepared for the erection of a new fire station and police station, and appointed a committee to inspect joint police and fire stations at Chesterfield, Worcester and Blackburn.

*

Plans passed by the WAKEFIELD Corporation: House, Horbury Road, for Mr. W. Sugars; store, Grove Road, for Mr. W. H. Ogden; packing shed, Co-operative Street, for Messrs. Hustler and Taylor.

*

The WAKEFIELD Corporation has decided to erect 150 houses, and empowered a sub-committee to select the sites.

*

The WAKEFIELD Corporation Electricity Committee is considering a proposal for the erection of showrooms for the department on the Pincheon Street site.

*

The Salvation Army is to erect a building for social work in BLACKFRIARS.

*

Plans passed by MARKET HARBOROUGH U.D.C.: Eleven houses, The Headlands, for Mr. H. H. Garlick.

*

Plans passed by the BOLTON Corporation: Workshop, Holland Street, for Mr. P. Thomasson; blacksmith's shop, Burnden Bleachworks, for Messrs. J. Marsden & Co., Ltd.; three shops and houses, New Hall Lane, for Messrs. Leigh Bros., Ltd.; additions, workshops, Nine House Lane, for Angle Bank Welding Company; lay-out of estate, Thorn Road, for Bleachers' Association, Ltd.

The STRETFORD U.D.C. is seeking sanction for a loan of £40,000 for further housing advances.

*

The Kent Education Committee has acquired a site at BECKENHAM for the erection of a secondary school for boys.

*

The LANCASTER Corporation is seeking permission from the Ministry of Health to proceed with the erection of a new isolation hospital. In connection with the scheme it is proposed to make provision for a block for the accommodation of about thirty tuberculous patients.

*

The LEICESTERSHIRE Education Committee has acquired three sites on the Braunstone estate for new schools.

*

Powers are to be sought by the GLASGOW Corporation for the diversion of the Duntocher burn and the construction of a wharf at Dalmuir sewage works.

*

Mr. Alexander M'Lellan is to build twenty-two houses at Merrylee Road and Netherauld Road, Newlands, GLASGOW.

*

Mr. James Downs is to erect eighty-five houses at Jordanhill, GLASGOW.

*

The Alexandra Park Trustees, MUSWELL HILL, are seeking the views of the contributory authorities on a proposal from a syndicate to take a lease of the palace and grounds for a greyhound race track, exhibitions, etc. The syndicate state that £100,000 will be expended on the scheme.

*

The EASTBOURNE Corporation is considering the provision of additional slipper baths at the Old Town Baths.

*

Plans submitted to the EASTBOURNE Corporation: Alterations and additions, Lansdown Hotel, for Mr. P. D. Stoneham, architect; six houses, Cavalry Crescent, for Messrs. J. Bodle, Ltd.; additions, Windsor Tavern, for Messrs. Page and Overton; alterations and additions, Cavendish Hotel, for Mr. J. H. Smith, architect; three shops and flats, Upperton Road, for Mr. A. Ford, architect.

*

The BOLTON Corporation has asked a committee to report as to the number of houses to be erected and as to suitable sites.

*

The BOLTON Corporation has obtained sanction to borrow £25,000 for further housing advances.

The NORTHAMPTON Corporation has asked the Baths Committee to consider the provision of washhouses and the districts where they should be erected.

*

Plans passed by the SWANSEA Corporation: Workshop, Penfilia Road, for Messrs. Weaver Bros.; additions, "Millers' Arms," Clydach Road, for Mr. J. S. Strange; bank, Wind Street, for Westminster Bank, Ltd.; three shops and houses, Manor Road, for Messrs. Weaver Bros.; garage and four flats, Plymouth Street, for Vanguard Motor Services, Ltd.; six houses, Grebfell Park estate, for Messrs. J. R. Banfield and Son; bakehouse and store, Gower Road, for Mr. John Peters; shops, Tycoch Road, for Mr. B. John; six houses, Lon Cadog, for Messrs. M. Jenkins & Co.; four houses, Baglan Street, for Mr. A. E. Wright; club, Pentrigethin Road, for Mr. D. J. Morgan; four houses, Zouch Street, for Mr. I. J. Aubrey; shops and flats, Newton Road, for Messrs. W. and T. Benyon; four houses, Worcester Terrace, for Mr. S. J. McGairl; eight houses, St. Peter's Road, for Mr. E. H. Davies; six houses, Cockett Road, for Mr. Syd Davies; ten houses, Craiglwyd Road, for Messrs. T. and G. Spragg; six houses, Townhill Road, for Messrs. Darch and Morgan; additions, Mission Rooms, Limekiln Road, for Archdeacon H. S. Williams.

*

The PENZANCE Corporation has discussed with representatives of the Great Western Railway proposals for harbour extensions, and the erection of a hotel on the island site.

*

Plans passed by the BOURNEMOUTH Corporation: Additions, premises in Holdenhurst Road, for Messrs. Kennedy's, Ltd.; shops, Capstone Road, for Mr. R. Hankinson; mission hall, Lower Charminster Road, for Mr. S. G. Ward; houses, shops, and garages, The Square and Richmond Hill, for Messrs. Hankinson and Son; two shops and flats, Wimborne Road, for Mr. W. Burridge; showroom and offices, Wimborne Road, for Mr. W. A. Willis; additions, South Western Hotel, Northcote Road, for Messrs. Eldridge, Pope & Co., Ltd.; additions, Royal Bath Hotel, Bath Road, for Hotel Company; four houses, Rosemount Road, for Mr. S. Whitelock; three houses, Pine Road, for Mr. S. G. Ward; five houses, Pine Road, for Mr. A. Adams; three houses, Richmond Hill, for Messrs. A. C. Barnes & Co., Ltd.; three houses, Victoria Park Road, for Mr. W. Haycraft; four houses, Norton Road, for Mr. H. Watton.

*

Plans passed by PAIGNTON U.D.C.: New road off Marine Drive, for Mr. J. F. Lancaster; layout of estate at York Road, for Mr. H. Whitley; four houses, York Road, for Messrs. F. and A. C. Drew; two houses, Roundham Avenue, for Messrs. Willicott and Barnes; layout of Laura Drive, for Paignton and District Land Co., Ltd.

The PAIGNTON U.D.C. has appointed Mr. G. W. Colborne as architect to prepare plans for the erection of houses on the destructor site.

*

The Estate Trustees of the Poyle Charity are to erect business premises between Harvey Road and Sydenham Road, GUILDFORD.

*

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

*

The LOWESTOFT Education Committee is seeking sanction for a loan for the purchase of land in Beccles Road for the erection of an elementary school.

*

Plans passed by the LOWESTOFT Corporation: Warehouse and showroom, Suffolk Road, for Mr. R. J. Pryce; four bungalows, Chestnut Avenue, for Mr. P. Huckle; bungalow, Normaston Drive, for Mr. Conway; additions, Royal Plain, for Royal Norfolk and Suffolk Yacht Club; two houses, Laurel Avenue, for Mr. F. W. King; three houses, Chestnut Avenue, for Mr. C. F. Church.

*

The TYNEMOUTH Corporation is making an offer for 17 acres at Cullercoats for a housing scheme.

*

Plans passed by the PENRITH U.D.C.: Additions to café, King Street, for Mr. E. M. Wilson; additions, premises in Middlegate, for Mr. F. Stephenson.

*

The Building Committee of the United Free Church has obtained two sites at Carntyne and Knightswood, GLASGOW, for the erection of churches.

*

Plans passed by the HORNSEY Corporation: Seven houses, Annington Road, for Mr. A. T. Day; four houses, Creighton Avenue, for Messrs. S. W. Phillips & Co.; block of flats, 69 to 76 Church Crescent, per Mr. W. B. Collins, for Rookfield Garden Village, Ltd.

*

The SWANSEA Corporation is in negotiation with the Great Western Railway in regard to the suggestion for the construction of a railway to connect the Vale of Neath line with High Street Station.

*

The .Townhill and Mayhill Tenants' Association is obtaining a site from the Corporation at Townhill, SWANSEA, for the erection of an institute.

*

Mr. James Bailey is obtaining from the SWANSEA Corporation a lease of 202-3 Carmarthen Road for the erection of new premises.

*

The borough engineer of BARNSLEY has been instructed to proceed with the scheme for alterations at the Corn Exchange.

The borough engineer of SWANSEA is to prepare a comprehensive scheme for the drainage of Killay to facilitate the development of the Goitre Fawr housing estate.

*

Plans have been lodged with the SWANSEA Corporation by Mr. A. J. Marles for the erection of a cinema in Carmarthen Road and Station Road.

*

The borough engineer of BRIGHTON, who has prepared a layout of the Bevendean estate, is to prepare estimates for the construction of the roads and sewers.

*

The COULSDON U.D.C. is notified by the Postmaster-General that a site at the corner of Brighton Road and Grovelands Road has been obtained for the erection of a new telephone exchange.

*

Plans passed by the PURLEY U.D.C.: Eighteen shops, Brighton Road, for Mr. R. D. Taylor; ten houses and thirteen garages, Yew Tree Walk, for Mr. F. W. Thomas; four houses, Riddlesdown Avenue, for Mr. G. Peskett; six houses, Purley Bury Avenue, for Mr. W. J. Frewing; eight houses, Portnalls Rise, for Mr. J. G. Cooper.

*

Plans passed by the COULSDON U.D.C.: Four houses, Howard Road, for Mr. H. N. Dering; two houses, Court Avenue, for Coulsdon Heights Estate Co., Ltd.; two houses, Clifton Road, for Mr. G. F. Watts.

*

Plans passed by the SANDERSTEAD U.D.C.: Two houses, Mitchley Wood estate, for Mr. A. E. Stent; two houses, Downsway, for Mr. H. P. Hawkes; house, Purley Oaks Road, for Mr. H. Thomas.

*

The COULSDON U.D.C. has obtained sanction to borrow £20,000 for further housing advances.

*

The BARNSLEY Corporation is in negotiation for the acquisition of land for the Royd Moor reservoir.

*

Plans passed by the FULHAM B.C.: Nursing home, Gledstanes Road, for Mr. H. Paul; electricity showrooms extensions, Fulham Road, for Mr. H. de Colleville.

*

Plans passed by HERNE BAY U.D.C.: Four houses, Queensbridge Drive, for Mr. Douglas Weightman; shop, Mortimer Street, for Mr. G. Greasley; dispensary, Charles Street, for Mr. B. J. Bennett; two shops, Sea Street, for Mr. H. E. Puttock.

*

Plans passed by the BATTERSEA B.C.: Alterations and additions, 24-26 St. John's Road, for Messrs. J. Lyons & Co., Ltd.; shops and flats, corner of Belle Vue Road and Wiseton Road, for Mr. J. W. S. Burmester.

The WIMBLEDON Corporation has asked the borough engineer to prepare a scheme for the completion of the development of the Wimbledon Park estate.

*

Plans passed by the EASTBOURNE Corporation: Additions, *Gazette* printing works, Pevensey Road, for Mr. W. R. Hamblyn, architect; two houses, St. Anthony's Avenue, for Mr. S. G. Scales, architect; offices, Fort Lane, for Mr. A. J. Fellows, architect; two houses, Dillingburgh Road, for Messrs. A. J. Besant, Ltd.; alterations, White Hart Hotel, Firle Road, for Mr. S. H. Tiltman, architect; two houses, Ringwood Road, for Mr. C. Ford, architect; alterations, 62-64 Seaside, for Mr. B. Stevens, architect; five shops and flats, Seaside, for Artisans Dwellings Company; two houses, Park Avenue, for Messrs. E. Mason and Sons; alterations, Glastonbury Hotel, Royal Parade, for Mr. A. Ford, architect.

*

The LEEDS Corporation Property Committee is to co-operate with the Baths and Libraries Committee regarding a proposal for the provision of a building at Cross Gates for the purpose of baths and library.

*

The LEEDS Corporation has appointed a sub-committee to report on the proposal for the erection of a branch library at Hunslet.

*

The LEEDS Corporation has obtained sanction for a loan of £32,000 for the erection of seventy-two houses at Harehills for rehousing displaced tenants from cleared areas.

*

Plans passed by the LEWISHAM B.C.: Eleven houses, Peak Hill, for Messrs. Clout and Tysoe, Ltd.; ten houses, off Manor Lane, for Messrs. W. J. Scudamore, Ltd.; parish hall, Southvale Road, for Mr. Thomas Knight; thirteen houses, Peak Hill, for Mr. G. Clothier; 100 houses, L.C.C. Downham estate, for Mr. J. G. Stephenson.

*

Plans passed by the LEWISHAM B.C.: Additions, 346 High Street, for Standard Steel Co., Ltd.; sixteen shops and flats, Catford Road, for Mr. James Watts; 160 houses, L.C.C. Downham estate, for Mr. J. G. Stephenson; four houses, Lowther Hill, for Mr. H. Mansbridge; school, Beckenham Lane, for Mr. Fred A. Walters; shops, 130-134 Rushey Green, Catford, for Messrs. F. W. Woolworth & Co., Ltd.

*

The Metropolitan Railway Company is to reconstruct EUSTON Square Station.

*

The STOKE NEWINGTON B.C. Baths Committee has had plans prepared by Messrs. Hobden and Porri, the architects, for the provision of a swimming bath at Clissold Road, and recommends a scheme which will allow for the provision of a hall as well, the total cost being £30,000.

The WAKEFIELD Corporation has decided to complete the Volunteer Yard improvement scheme.

*

Plans passed by the Truro Corporation: Two houses, Fairmantle Street, for Truro Gas Company; alterations, Royal Hotel, for Messrs. Cowell, Drewitt and Wheatley, architects; four houses, Tremayne Road, for Mr. R. J. Bassett; alterations, bank, King Street, for Barclays Bank Ltd.

*

The TRURO Corporation has appointed a committee to report on sites for the erection of houses with a view to the clearance of slum areas in the city.

*

The BARNSLEY Corporation has decided upon the erection of houses on the Burton Grange estate by direct labour.

*

The BARNSLEY Corporation has obtained sanction for a loan of £10,000 for further housing grants.

*

Plans passed by the BARNSLEY Corporation: New streets off Dodworth Road, for Messrs. Hey and Pashley; equipment chamber, Cudworth Brickworks, for Yorkshire Electric Power Co., Ltd.; four houses, White Hill Avenue, for Messrs. Hey and Pashley; additions, premises in Sheffield Road and Pontefract Road, for Messrs. C. H. Beeson and Son.

*

The BARNSLEY Education Committee is to erect additional classrooms at the elementary school in Grove Street.

*

The BARNSLEY Corporation is again to consider the extension of Kendray Hospital.

*

The BARNSLEY Education Committee has decided to proceed with the erection of a technical and mining college at a cost of £80,000.

*

The Office of Works has purchased a site at the corner of Regent Street and Church Street, BARNSLEY, for the erection of a post office.

*

Two wings are to be added to St. Peter's House, New Inn Hall Street, OXFORD.

*

The OXFORD Board of Control is not in favour of the site at Sandford for the proposed joint mental institution, and the County Council is to secure a more suitable site.

*

Messrs. Alexander Binnie, Son and Deacon recommend a site at Beacon Hill for the new service reservoir and a site at Swinford Bridge, OXFORD, for the new intake.

*

The OXFORD Corporation is inviting tenders for the erection of 220 houses on the Gipsy Lane estate.

The OXFORD Corporation has arranged with the trustees of the Harcourt estate to extend the water supply to North Hinksey at a cost of £10,000.

*

The OXFORD Corporation is seeking sanction to borrow £13,000 for additional housing advances.

*

Plans passed by the OXFORD Corporation: Business premises, Cowley Road, for Mr. R. W. Saunders; house, Northmoor Road, for Mr. A. Barrett Brown; house, George Street, for Mr. W. G. Collett.

*

The OXFORD Corporation proposes a scheme for the provision of an abattoir at an estimated cost of £15,000.

*

The DORCHESTER Corporation is negotiating for a site in the east of the town for the erection of houses.

*

The DOUGLAS (I. o. M.) Corporation is to erect another fifty houses on the Pulrose estate, according to plans prepared by Mr. Teare, the housing architect.

*

The HAMPTON U.D.C. is inquiring for a housing site adjoining Mark Hole recreation ground.

*

Plans passed by the WOKING U.D.C.: Four houses, Rosebery Crescent, for Mr. A. E. Jones; ninety-two houses and eight flats, Walton estate, for Mr. W. G. Shipwright; restaurant, Connaught Road, for Mr. A. Dance; workshop, Kingfield Road, for Mr. E. W. Nottridge.

*

The WOKING U.D.C. Housing Committee is considering the acquisition of land at Old Woking for the erection of a considerable number of houses.

*

The DOUGLAS (I. o. M.) Corporation is considering alternative sites for the erection of flats.

*

Plans passed by the DOUGLAS (I. o. M.) Corporation: Bus depot, Salisbury Street, for Manxland Bus Services, Ltd.; billiard room, Alexander Drive, for Mr. Kirkpatrick; two houses, Bray Hill, for Mrs. Ingham; alterations, South Quay, for Anglo-American Oil Co., Ltd.

*

The Worcestershire C.C. has acquired a site at WORCESTER for the erection of a small-pox hospital.

*

The WORCESTERSHIRE C.C. is in communication with local authorities regarding the provision of a joint institution for mental defectives.

*

The Worcestershire C.C. is acquiring 75 acres at CASTLE MORTON for the provision of small holdings.

RATES OF WAGES

			I	II
			s. d.	s. d.
A	ABERDARE	S. Wales & M.	1 8	1 2½
A₁	Abergavenny	S. Wales & M.	1 7½	1 2½
B	Abingdon ..	S. Counties	1 6	1 1½
A	Accrington	N.W. Counties	1 8	1 3½
A₂	Addlestone	S. Counties	1 6½	1 2
A	Adlington ..	N.W. Counties	1 8	1 3½
A	Airdrie ..	Scotland	*1 8	1 3½
C₁	Aldeburgh	E. Counties	1 4	1 0½
A	Altrincham	N.W. Counties	1 8	1 3½
B₂	Appleby ..	N.W. Counties	1 4½	1 0½
A	Ashton-under-Lyne	N.W. Counties	1 8	1 3½
A₂	Atherstone	Mid. Counties	1 6½	1 2
B₂	Aylesbury ..	S. Counties	1 4½	1 0½
B₂	BANBURY	S. Counties	1 4½	1 0½
B₂	Bangor ..	N.W. Counties	1 5	1 1
A	BarnardCastle	N.E. Coast	1 8	1 3½
A	Barnsley ..	Yorkshire	1 8	1 3½
B₁	Barnstaple	S.W. Counties	1 5½	1 1½
A	Barrow ..	N.W. Counties	1 8	1 3½
A	Barry ..	S. Wales & M.	1 8	1 3½
B₂	Basingstoke	S.W. Counties	1 4½	1 0½
B	Bath ..	S.W. Counties	1 6	1 1½
A	Batley ..	Yorkshire	1 8	1 3½
B	Bedford ..	E. Counties	1 6	1 1½
A₂	Berwick-on-Tweed	N.E. Coast	1 7	1 2½
A₂	Bewdley ..	Mid. Counties	1 7	1 2½
B₂	Bicester ..	Mid. Counties	1 4½	1 0½
A	Birkenhead	N.W. Counties	*1 10	1 4½
A	Birmingham	Mid. Counties	1 8	1 3½
A	Bishop Auckland	N.E. Coast	1 8	1 3½
A	Blackburn	N.W. Counties	1 8	1 3½
A	Blackpool	N.W. Counties	1 8	1 3½
A	Blyth ..	N.E. Coast	1 8	1 3½
B₂	Bognor ..	S. Counties	1 4½	1 0½
A	Bolton ..	N.W. Counties	1 8	1 3½
A₂	Boston ..	Mid. Counties	1 6½	1 2
B₁	Bournemouth	S. Counties	1 6	1 1½
B₂	Bovey Tracey	S.W. Counties	1 5	1 1
A	Bradford ..	Yorkshire	1 8	1 3½
A₂	Brentwood	E. Counties	1 7	1 2½
A	Bridgend ..	S. Wales & M.	1 8	1 3½
B₂	Bridgwater	S.W. Counties	1 5	1 1
A₁	Bridlington	Yorkshire	1 7½	1 2½
A	Brighouse	Yorkshire	1 8	1 3½
B₁	Brighton ..	S. Counties	1 6	1 1½
A	Bristol ..	S.W. Counties	1 8	1 3½
B₂	Brixham ..	S.W. Counties	1 4½	1 0½
A₂	Bromsgrove	Mid. Counties	1 7	1 2½
C	Bromyard ..	Mid. Counties	1 4	1 0½
A	Burnley ..	N.W. Counties	1 8	1 3½
A	Burslem ..	Mid. Counties	1 8	1 3½
A₂	Burton-on-Trent	Mid. Counties	1 7	1 2½
A	Bury ..	N.W. Counties	1 8	1 3½
A₁	Buxton ..	N.W. Counties	1 7½	1 2½
B	CAMBRIDGE	E. Counties	1 6	1 1½
B₂	Canterbury	S. Counties	1 4½	1 0½
A	Cardiff ..	S. Wales & M.	1 8	1 3½
A	Carlisle ..	N.W. Counties	1 8	1 3½
B	Carmarthen	S. Wales & M.	1 6	1 1½
B₂	Carnarvon	N.W. Counties	1 5	1 1
A₁	Carnforth ..	N.W. Counties	1 7½	1 2½
A	Castleford	Yorkshire	1 8	1 3½
B₁	Chatham ..	S. Counties	1 5½	1 1½
B₁	Chelmsford	E. Counties	1 5½	1 1½
A₂	Cheltenham	S.W. Counties	1 6½	1 2
A	Chester ..	N.W. Counties	1 8	1 3½
A	Chesterfield	Mid. Counties	*1 8	1 3½
B₂	Chichester	S. Counties	1 4½	1 0½
A	Chorley ..	N.W. Counties	1 8	1 3½
B₂	Cirencester	S. Counties	1 5	1 1
A	Clitheroe ..	N.W. Counties	1 8	1 3½
A	Clydebank	Scotland	1 8	1 3½
A	Coalville ..	Mid. Counties	1 8	1 3½
B₁	Colchester ..	E. Counties	1 5½	1 1½
A	Colne ..	N.W. Counties	1 8	1 3½
A₂	Colwyn Bay	N.W. Counties	1 6½	1 2
A	Consett ..	N.E. Coast	1 8	1 3½
A₂	Conway ..	N.W. Counties	1 6½	1 2
A	Coventry ..	Mid. Counties	1 8	1 3½
A₂	Crewe ..	N.W. Counties	1 6½	1 2
A₂	Cumberland	.....	1 6½	1 2
A	DARLINGTON	N.E. Coast	1 8	1 3½
A	Darwen ..	N.W. Counties	1 8	1 3½
B₂	Deal ..	S. Counties	1 4½	1 0½
A₂	Denbigh ..	N.W. Counties	1 6½	1 2
A	Derby ..	Mid. Counties	1 8	1 3½
A	Dewsbury ..	Yorkshire	1 8	1 3½
B	Didcot ..	S. Counties	1 6	1 1½
A	Doncaster	Yorkshire	1 8	1 3½
C₁	Dorchester	S.W. Counties	1 4	1 0½
A₂	Driffield ..	Yorks	1 6½	1 2
A₂	Droitwich ..	Mid. Counties	1 6½	1 2
A₁	Dudley ..	Mid. Counties	1 7½	1 2½
A	Dundee ..	Scotland	1 8	1 3½
A	Durham ..	N.E. Coast	1 8	1 3½
B₁	EASTBOURNE	S. Counties	1 6	1 1½
A	Ebbw Vale	S. Wales & M.	1 8	1 3½
A	Edinburgh	Scotland	1 8	1 3½
A	E. Glamorganshire & Monmouthshire	S. Wales & M.	1 8	1 3½
B	Exeter ..	S.W. Counties	*1 7	1 2½
B₂	Exmouth ..	S.W. Counties	1 5	1 1
B	FELIXSTOWE	E. Counties	1 6	1 1½
A₂	Filey ..	Yorks	1 6½	1 2
A	Fleetwood ..	N.W. Counties	1 8	1 3½
B₂	Folkestone	S. Counties	1 5	1 1
A	Frodsham ..	N.W. Counties	1 8	1 3½
B₂	Frome ..	S.W. Counties	1 4½	1 0½
A	GATESHEAD	N.E. Coast	1 8	1 3½
B₁	Gillingham	S. Counties	1 5½	1 1½
A₂	Gloucester	S.W. Counties	1 6½	1 2
A₂	Goole ..	Yorkshire	1 7	1 2½
B	Gosport ..	S. Counties	1 6	1 1½
A₂	Grantham	Mid. Counties	1 6½	1 2
A	Gravesend	S. Counties	1 7½	1 2½
A	Greenock ..	Scotland	*1 8	1 3½
A	Grimsby ..	Yorkshire	1 8	1 3½
B₁	Guildford ..	S. Counties	1 5½	1 1½
A	HALIFAX ..	Yorkshire	1 8	1 3½
A	Hanley ..	Mid. Counties	1 8	1 3½
A	Harrogate	Yorkshire	1 8	1 3½
A	Hartlepools	N.E. Coast	1 8	1 3½
B₂	Harwich ..	E. Counties	1 5	1 1
B₂	Hastings ..	S. Counties	1 4½	1 0½
B₁	Hatfield ..	S. Counties	1 5½	1 1½
B	Hereford ..	S. W. Counties	1 6	1 1½
B	Hertford ..	E. Counties	1 5½	1 1½
A₁	Heysham ..	N.W. Counties	1 7½	1 2½
A	Howden ..	N.E. Coast	1 8	1 3½
A	Huddersfield	Yorkshire	1 8	1 3½
A	Hull ..	Yorkshire	1 8	1 3½
A	ILKLEY ..	Yorkshire	1 8	1 3½
A	Immingham	Mid. Counties	1 8	1 3½
B	Ipswich ..	E. Counties	1 6	1 1½
C₁	Isle of Wight	S. Counties	1 4	1 0½
A	JARROW ..	N.E. Coast	1 8	1 3½
A	KEIGHLEY	Yorkshire	1 8	1 3½
B₁	Kendal ..	N.W. Counties	1 5½	1 1½
B₁	Keswick ..	N.W. Counties	1 5½	1 1½
B	Kettering ..	Mid. Counties	1 6	1 1½
A₂	Kidderminster	Mid. Counties	1 7	1 2½
B₂	King's Lynn	E. Counties	1 5	1 1
A	LANCASTER	N.W. Counties	1 8	1 3½
A₂	Leamington	Mid. Counties	1 7	1 2½
A	Leeds ..	Yorkshire	1 8	1 3½
A	Leek ..	Mid. Counties	1 8	1 3½
A	Leicester ..	Mid. Counties	1 8	1 3½
A	Leigh ..	N.W. Counties	1 8	1 3½
B₂	Lewes ..	S. Counties	1 4½	1 0½
A₂	Lichfield ..	Mid. Counties	1 6½	1 2
A	Lincoln ..	Mid. Counties	1 8	1 3½
A	Liverpool ..	N.W. Counties	*1 10	1 4½
A₂	Llandudno	N.W. Counties	1 6½	1 2
A	Llanelly ..	S. Wales & M.	1 8	1 3½
	London (12 miles radius)		1 9½	1 4½
	Do. (12-15 miles radius)		1 9	1 4
A	Long Eaton	Mid. Counties	1 8	1 3½
A	Loughborough	Mid. Counties	1 8	1 3½
B	Luton ..	E. Counties	1 6	1 1½
A	Lytham ..	N.W. Counties	1 8	1 3½
A₁	MACCLESFIELD	N.W. Counties	1 7½	1 2½
B	Maidstone	S. Counties	1 5½	1 1½
A₂	Malvern ..	Mid. Counties	1 6½	1 2
A	Manchester	N.W. Counties	1 8	1 3½
A	Mansfield ..	Mid. Counties	1 8	1 3½
B₂	Margate ..	S. Counties	1 4½	1 0½
A₂	Matlock ..	Mid. Counties	1 6½	1 2
A	Merthyr ..	S. Wales & M.	1 8	1 3½
A	Middlesbrough	N.E. Coast	1 8	1 3½
A₂	Middlewich	N.W. Counties	1 6½	1 2
B₂	Minehead ..	S.W. Counties	1 5	1 1
A	Monmouth S. and E. Glamorganshire	S. Wales & M.	1 8	1 3½
A₁	Morecambe	N.W. Counties	1 7½	1 2½
A₂	NANTWICH	N.W. Counties	1 6½	1 2
A	Neath ..	S. Wales & M.	1 8	1 3½
A	Nelson ..	N.W. Counties	1 8	1 3½
A	Newcastle ..	N.E. Coast	1 8	1 3½
A	Newport ..	S. Wales & M.	1 8	1 3½
A	Normanton	Yorkshire	1 8	1 3½
A₂	Northampton	Mid. Counties	1 7	1 2½
A	North Staffs.	Mid. Counties	1 8	1 3½
A	North Shields	N.E. Coast	1 8	1 3½
A₂	Norwich ..	E. Counties	1 6½	1 2
A	Nottingham	Mid. Counties	1 8	1 3½
A	Nuneaton ..	Mid. Counties	1 8	1 3½
B	OAKHAM ..	Mid. Counties	1 5½	1 1½
A	Oldham ..	N.W. Counties	1 8	1 3½
A₂	Oswestry ..	Mid. Counties	1 6½	1 2
B	Oxford ..	S. Counties	1 6	1 1½
A	PAISLEY ..	Scotland	*1 8	1 3½
C	Pembroke	S. Wales & M.	1 4½	1 0½
A	Perth ..	Scotland	*1 8	1 3
A₂	Peterborough	Mid. Counties	1 6½	1 2
A	Plymouth	S.W. Counties	*1 8	1 3½
A	Pontefract	Yorkshire	1 8	1 3½
A	Pontypridd	S. Wales & M.	1 8	1 3½
B	Portsmouth	S. Counties	1 6	1 1½
A	Preston ..	N.W. Counties	1 8	1 3½
A	QUEENSFERRY	N.W. Counties	1 8	1 3½
B	READING ..	S. Counties	1 6	1 1½
B	Reigate ..	S. Counties	1 5½	1 1½
A₂	Retford ..	Mid. Counties	1 6½	1 2
A	Rhondda Valley	S. Wales & M.	1 8	1 3½
A₂	Ripon ..	Yorkshire	1 6½	1 2
A	Rochdale ..	N.W. Counties	1 8	1 3½
B	Rochester	S. Counties	1 5½	1 1½
A₁	Ruabon ..	N.W. Counties	1 7½	1 2½
A₂	Rugby ..	Mid. Counties	1 8	1 3½
A₂	Rugeley ..	Mid. Counties	1 6½	1 2
A	Runcorn ..	N.W. Counties	1 8	1 3½
A₂	ST. ALBANS	E. Counties	1 6½	1 2
A	St. Helens	N.W. Counties	1 8	1 3½
B₂	Salisbury	S.W. Counties	1 4½	1 0½
A₁	Scarborough	Yorkshire	1 7½	1 2½
A	Scunthorpe	Mid. Counties	1 8	1 3½
A	Sheffield ..	Yorkshire	1 8	1 3½
A	Shipley ..	Yorkshire	1 8	1 3½
A₂	Shrewsbury	Mid. Counties	1 6½	1 2
A₂	Skipton ..	Yorkshire	1 7	1 2½
B	Slough ..	S. Counties	1 5½	1 1½
A₂	Solihull ..	Mid. Counties	1 7	1 2½
A₂	South'pton	S. Counties	1 6½	1 2
B₁	Southend-on-Sea	E. Counties	1 5½	1 1½
A	Southport ..	N.W. Counties	1 8	1 3½
A	S. Shields ..	N.E. Coast	1 8	1 3½
A₂	Stafford ..	Mid. Counties	1 7	1 2½
A	Stockport ..	N.W. Counties	1 8	1 3½
A	Stockton-on-Tees	N.E. Coast	1 8	1 3½
A	Stoke-on-Trent	Mid. Counties	1 8	1 3½
B	Stroud ..	S.W. Counties	1 5½	1 1½
A	Sunderland	N.E. Coast	1 8	1 3½
A	Swadlincote	Mid. Counties	1 8	1 3½
A	Swansea ..	S. Wales & M.	1 8	1 3½
B	Swindon ..	S.W. Counties	1 6	1 1½
A₁	TAMWORTH	N.W. Counties	1 7½	1 2½
B₁	Taunton ..	S.W. Counties	1 5½	1 1½
A	Teeside Dist.	N.E. Counties	1 8	1 3½
B	Teignmouth	S.W. Coast	1 6	1 1½
A	Todmorden	Yorkshire	1 8	1 3½
A₂	Torquay ..	S.W. Counties	1 7	1 2½
C	Truro ..	S.W. Counties	1 4	1 0½
B₁	Tunbridge Wells	S. Counties	1 5½	1 1½
A	Tunstall ..	Mid. Counties	1 8	1 3½
A	Tyne District	N.E. Coast	1 8	1 3½
A	WAKEFIELD	Yorkshire	1 8	1 3½
A₁	Walsall ..	Mid. Counties	1 7½	1 2½
A	Warrington	N.W. Counties	1 8	1 3½
A₂	Warwick ..	Mid. Counties	1 7	1 2½
B	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 8	1 3½
B	Weston-s-Mare	S.W. Counties	1 6	1 1½
A₂	Whitby ..	Yorkshire	1 7	1 2½
A	Widnes ..	N.W. Counties	1 8	1 3½
A	Wigan ..	N.W. Counties	1 8	1 3½
B₂	Winchester	S. Counties	1 5	1 1
B	Windsor ..	S. Counties	1 6	1 1½
A	Wolverhampton	Mid. Counties	1 8	1 3½
A₂	Worcester ..	Mid. Counties	1 6½	1 2
A₂	Worksop ..	Yorkshire	1 6½	1 2
A₁	Wrexham ..	N.W. Counties	1 7½	1 2½
B	Wycombe ..	S. Counties	1 6	1 1½
B₁	YARMOUTH	E. Counties	1 5½	1 1½
B₂	Yeovil ..	S.W. Counties	1 5	1 1
A	York ..	Yorkshire	1 8	1 3

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

Broken brick or stone, 2 in., per yd.	£0 11 6
Thames ballast, per yd.	0 11 0
Pit gravel, per yd.	0 18 0
Pit sand, per yd.	0 14 6
Washed sand	0 15 0
Screened ballast or gravel, add 10 per cent. per yd.	
Clinker, breeze, etc., prices according to locality.	
Portland cement, per ton	£2 19 0
Lias lime, per ton	2 10 0
Sacks charged extra at 1s. 9d. each and credited when returned at 1s. 6d.	
Transport hire per day:	
Cart and horse £1 3 0 *Trailer*	£0 15 0
3-ton motor lorry 3 15 0 *Steam roller*	4 5 0
Steam lorry, 5-ton 4 0 0 *Water cart*	1 5 0

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

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

DRAINER

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

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

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

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

BRICKLAYER

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

London stocks, per M.	£4 15 0
Flettons, per M.	2 18 0
Staffordshire blue, per M.	9 10 0
Firebricks, 2½ in., per M.	11 3 0
Glazed salt, white, and ivory stretchers per M.	24 10 0
DO. *headers, per M.*	24 0 0
Colours, extra, per M.	5 10 0
Seconds, less, per M.	1 0 0
Cement and sand, see "Excavator" above.	
Lime, grey stone, per ton	2 17 0
Mixed lime mortar, per yd.	1 6 0
Damp course, in rolls of 4½ in., per roll	0 2 6
DO. 9 *in. per roll*	0 4 9
DO. 14 *in. per roll*	0 7 6
DO. 18 *in. per roll*	0 9 6

BRICKWORK in stone lime mortar, Flettons or equal, per rod	£33 0 0
DO. in cement do., per rod	36 0 0
DO. in stocks, add 25 per cent. per rod.	
DO. in blues, add 100 per cent. per rod.	
DO. circular on plan, add 12½ per cent. per rod.	
DO. in backing to masonry, add 12½ per cent. per rod.	
DO. in raising on old walls, etc., add 12½ per cent. per rod.	
DO. in underpinning, add 20 per cent. per rod.	
HALF-BRICK walls in stocks in cement mortar (1–3), per ft. sup.	£0 1 0
BEDDING plates in cement mortar, per ft. run	0 0 3
BEDDING window or door frames, per ft. run	0 0 3
LEAVING chases 2½ in. deep for edges of concrete floors not exceeding 6 in. thick, per ft. run	0 0 2
CUTTING do. in old walls in cement, per ft. run	0 0 4
CUTTING, toothing and bonding new work to old (labour and materials), per ft. sup.	0 0 7
TERRA-COTTA flue pipes 9 in. diameter, jointed in fireclay, including all cuttings, per ft. run	0 3 6
DO. 14 ft. by 9 in. do., per ft. run	0 6 0
FLAUNCHING chimney pots, each	0 2 0
CUTTING and pinning ends of timbers, etc., in cement	0 1 0
FACINGS fair, per ft. sup. extra	0 0 3
DO. picked stocks, per ft. sup. extra	0 0 7
DO. red rubbers gauged and set in putty, per ft. sup. extra	0 4 9
DO. in salt white or ivory glazed, per ft. sup. extra	0 5 6
TUCK pointing, per ft. sup. extra	0 0 10
WEATHER pointing, do. do.	0 0 3
TILE creasing with cement fillet each side per ft. run	0 0 6
GRANOLITHIC PAVING, 1 in., per yd. sup.	0 5 0
DO. 1½ in., per yd. sup	0 6 0
DO. 2 in., per yd. sup.	0 7 0
If coloured with red oxide, per yd. sup.	0 1 0
If finished with carborundum, per yd. sup.	0 0 6
If in small quantities in finishing to steps, etc., per ft. sup.	0 1 4
Jointing new grano, paving to old, per ft. run	0 0 4
Extra for dishing grano, or cement paving around gullies, each	0 1 6
BITUMINOUS DAMP COURSE, ex rolls, per ft. sup.	0 0 7
ASPHALT (MASTIC) DAMP COURSE, ½ in., per yd. sup.	0 8 0
DO. vertical, per yd. sup.	0 11 0
SLATE DAMP COURSE, per ft. sup.	0 0 10
ASPHALT ROOFING (MASTIC) in two thicknesses, ¾ in., per yd.	0 8 6
DO. SKIRTING, 6 in.	0 0 11
BREEZE PARTITION BLOCKS, set in cement, 1½ in. per yd. sup.	0 5 3
DO. DO. 3 in..	0 6 6
BREEZE fixing bricks, extra for each	0 0 3

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

MASON

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

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. 9½d. *per hour*; TILER, 1s. 9½d. *per hour*; SCAFFOLDER, 1s. 5½d. *per hour*; LABOURER, 1s. 4½d. *per hour.*
N.B.—Tiling is often executed as piecework.

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

See "Sundries for Asbestos Tiling."

CARPENTER AND JOINER

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

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

FIR fixed in wall plates, lintels, sleepers, etc., per ft. cube	0 5 6
DO. framed in floors, roofs, etc., per ft. cube	0 6 6
DO. framed in trusses, etc., including ironwork, per ft. cube	0 7 6
PITCH PINE, add 33⅓ per cent.	
FIXING only boarding in floors, roofs, etc., per sq.	0 13 6
SARKING FELT laid, 1-ply, per yd.	0 1 6
DO. 3-ply, per yd.	0 1 9
CENTERING for concrete, etc., including horsing and striking, per sq.	2 10 0
TURNING pieces to flat or segmenta soffits, 4½ in. wide, per ft. run	0 0 4½
DO. 9 in. wide and over per ft. sup.	0 1 2

continued overleaf

CARPENTER AND JOINER: *continued.*

SHUTTERING to face of concrete, per square	£1	10	0
DO. in narrow widths to beams, etc., per ft. sup.	0	0	6
USE and waste of timbers, allow 25 per cent. of above prices.			
SLATE BATTENING, per sq.	£0	12	6
DEAL boarding to flats, 1 in. thick and firrings to falls, per square	2	10	0
STOUT feather-edged tilting fillet to eaves, per ft. run	0	0	6
FEATHER-edged springer to trimmer arches, per ft. run	0	0	4
STOUT herringbone strutting (joists measured in), per ft. run	0	0	6
SOUND boarding, ⅞ in. thick and fillets nailed to sides of joists (joists measured over), per square	2	0	0
RUBEROID or similar quality roofing, one-ply, per yd. sup.	0	2	3
DO., two-ply, per yd. sup.	0	2	6
DO., three-ply, per yd. sup.	0	3	0
TONGUED and grooved flooring, 1¼ in. thick, laid complete with splayed headings, per square	2	5	0
DEAL skirting torus, moulded 1¼ in. thick, including grounds and backings, per ft. sup.	0	1	0
TONGUED and mitred angles to do.	0	0	6
WOOD block flooring standard blocks laid herringbone in mastic :			
Deal 1 in. thick, per yd. sup.	0	10	0
DO. 1¼ in. thick, per yd. sup.	0	12	0
Maple 1¼ in. thick, per yd. sup.	0	15	0
DEAL moulded sashes, 1¾ 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, 1¾ in. thick, per ft. sup.	0	2	6
DO. moulded both sides, per ft. sup.	0	2	9
DO. 2 in. thick, square both sides, per ft. sup.	0	2	9
DO. moulded both sides, per ft. sup.	0	3	0
DO. in 3 panels, moulded both sides, upper panel with diminished stiles with moulded bars for glass, per ft. sup.	0	3	6
If in oak, mahogany or teak, multiply 3 times.			
DEAL frames, 4 in. × 3 in., rebated and beaded per ft. cube	£0	15	0
Add for extra labours, per ft. run	0	0	1
STAIRCASE work :			
DEAL treads 1⅛ in. and risers 1 in., tongued and grooved including fir carriages, per ft. sup.	0	2	6
DEAL wall strings, 1¼ in. thick, moulded, per ft. run	0	2	6
If ramped, per ft. run	0	5	0
SHORT ramps, extra each	0	7	6
ENDS of treads and risers housed to strings, each	0	1	0
2 in. deal mopstick handrail fixed to brackets, per ft. run	0	1	6
4½ in. × 3 in. oak fully moulded handrail, per ft. run	0	5	6
1¼ in. square deal bar balusters, framed in, per ft. run	0	0	6
FITTINGS :			
SHELVES and bearers, 1 in., cross-tongued, per ft. sup.	0	1	6
1¼ in. beaded cupboard fronts, moulded and square, per ft. sup.	0	2	9
TEAK grooved draining boards, 1¼ in. thick and bedding, per ft. sup.	0	4	6
IRONMONGERY :			
Fixing only (including providing screws) :			
To DEAL—			
Hinges to sashes, per pair	0	1	2
DO. to doors, per pair	0	1	7
Barrel bolts, 9 in., iron, each	0	1	0
Sash fasteners, each	0	1	0
Rim locks, each	0	1	9
Mortice locks, each	0	4	0

SMITH

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

*

Mild Steel in British standard sections, per ton	£12	10	0
Sheet Steel :			
Flat sheets, black, per ton	19	0	0
DO., *galvd., per ton*	20	0	0
Corrugated sheets, galvd., per ton	20	0	0
Driving screws, galvd., per grs.	0	1	10
Washers, galvd., per grs.	0	1	1
Bolts and nuts per cwt. and up	1	18	0

*

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

PLUMBER

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

*

Lead, milled sheet, per cwt.	£1	13	6
DO. *drawn pipes, per cwt.*	1	14	0
DO. *soil pipe, per cwt.*	1	17	0
DO. *scrap, per cwt.*	1	5	6
Copper, sheet, per lb.	0	1	9
Solder, plumber's, per lb.	0	1	3
DO. *fine, per lb.*	0	1	9
Cast-iron pipes, etc. :			
L.C.C. soil, 3 in., per yd.	0	4	0
DO. *4 in. per yd.*	0	4	9½
R.W.P., 2½ in., per yd.	0	2	2
DO. *3 in., per yd.*	0	2	7
DO. *4 in., per yd.*	0	3	6½
Gutter, 4 in. H.R., per yd.	0	1	6½
DO. *4 in. O.G., per yd.*	0	1	10½

*

MILLED LEAD and labour in gutters, flashings, etc.	3	2	6
LEAD PIPE, fixed, including running joints, bends, and tacks, ½ in., per ft.	0	2	0
DO. ⅝ in., per ft.	0	2	3
DO. 1 in., per ft.	0	3	0
DO. 1¼ in., per ft.	0	4	0
LEAD WASTE OR SOIL, fixed as above, complete, 2½ in., per ft.	0	6	0
DO. 3 in., per ft.	0	7	0
DO. 4 in., per ft.	0	9	9
WIPED soldered joint, ½ in., each	0	2	6
DO. ⅝ in., each	0	3	2
DO. 1 in., each	0	3	8
BRASS screw-down stop cock and two soldered joints, ½ in., each	0	11	0
DO. ⅝ in., each	0	13	6
CAST-IRON rainwater pipe, jointed in red lead, 2½ in., per ft. run	0	1	7
DO. 3 in., per ft. run	0	2	0
DO. 4 in., per ft. run	0	2	10
CAST-IRON H.R. GUTTER, fixed, with all clips, etc., 4 in., per ft.	0	2	0
DO. O.G., 4 in., per ft.	0	2	3
CAST-IRON SOIL PIPE, fixed with caulked joints and all ears, etc., 4 in., per ft.	0	4	6
DO. 3 in., per ft.	0	3	6
Fixing only :			
W.C. PANS and all joints, P. or S., and including joints to water waste preventers, each	2	5	0
BATHS, with all joints	1	3	6
LAVATORY BASINS only, with all joints, on brackets, each	1	10	0

PLASTERER

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

*

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

*

LATHING with sawn laths, per yd.	0	1	7
METAL LATHING, per yd.	0	2	3
FLOATING in Cement and Sand, 1 to 3, for tiling or woodblock. ⅜ in., per yd.	0	2	4
DO. vertical, per yd.	0	2	7
RENDER, on brickwork, 1 to 3, per yd.	0	2	7
RENDER in Portland and set in fine stuff, per yd.	0	3	3
RENDER, float, and set, trowelled, per yd.	0	2	9
RENDER and set in Sirapite, per yd.	0	2	5
DO. in Thistle plaster, per yd.	0	2	5
EXTRA, if on but not including lathing, any of foregoing, per yd.	0	0	5
EXTRA, if on ceilings, per yd.	0	0	5
ANGLES, rounded Keene's on Portland, per ft. lin.	0	0	6
PLAIN CORNICES, in plaster, per inch girth, including dubbing out, etc., per ft. lin.	0	0	3
WHITE glazed tiling set in Portland and jointed in Parian, per yd., from	1	11	6
FIBROUS PLASTER SLABS, per yd.	0	1	10

GLAZIER

GLAZIER, 1*s.* 8½*d. per hour.*

*

Glass : 4ths in crates :			
Clear, 21 oz.	£0	0	4½
DO. 26 oz.	0	0	5
Cathedral white, per ft.	0	0	7
Polished plate, British ⅛ in., up to 2 ft. sup. per ft.	0	1	6
DO. *4 ft. sup.* "	0	2	9
DO. *6 ft. sup.* "	0	3	0
DO. *20 ft. sup.* "	0	3	7
DO. *45 ft. sup.* "	0	3	9
DO. *65 ft. sup.* "	0	3	11
DO. *100 ft. sup.* "	0	4	4
Rough plate, ⅛ in., per ft.	0	0	6½
DO. *¼ in. per ft.*	0	0	6½
Linseed oil putty, per cwt.	0	15	0

*

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

Small sizes slightly less (under 3 ft. sup.).

Patent glazing in rough plate, normal span 1*s.* 6*d.* to 2*s.* per ft.

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

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

PAINTER AND PAPERHANGER

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

*

Genuine white lead, per cwt.	£2	7	6
Linseed oil, raw, per gall.	0	3	6
DO., *boiled, per gall.*	0	3	8
Turpentine, per gall.	0	4	0
Liquid driers, per gall.	0	8	6
Knotting, per gall.	0	18	0
Distemper, washable, in ordinary colours, per cwt., and up	2	5	0
Double size, per firkin	0	3	6
Pumice stone, per lb.	0	0	4½
Single gold leaf (transferable), per book	0	2	0
Varnish, copal, per gall. and up	0	14	0
DO., *flat, per gall.*	1	2	0
DO., *paper, per gall.*	0	16	0
French polish, per gall.	0	17	6
Ready mixed paints, per gall. and up	0	15	0

*

LIME WHITING, per yd. sup.	0	0	3
WASH, stop, and whiten, per yd. sup.	0	0	6
DO., and 2 coats distemper with proprietary distemper, per yd. sup.	0	0	9
KNOT, stop, and prime, per yd. sup.	0	0	7
PLAIN PAINTING, including mouldings, and on plaster or joinery, 1st coat, per yd. sup.	0	0	10
DO., subsequent coats, per yd. sup.	0	0	9
DO., enamel coat, per yd. sup.	0	1	2½
BRUSH-GRAIN, and 2 coats varnish, per yd. sup.	0	3	8
FIGURED DO., DO., per yd. sup.	0	5	6
FRENCH POLISHING, per ft. sup.	0	1	2
WAX POLISHING, per ft. sup.	0	0	6
STRIPPING old paper and preparing, per piece	0	1	7
HANGING PAPER, ordinary, per piece	0	1	10
DO., fine, per piece, and upwards	0	2	4
VARNISHING PAPER, 1 coat, per piece	0	9	0
CANVAS, strained and fixed, per yd. sup.	0	3	0
VARNISHING, hard oak, 1st coat, yd. sup.	0	1	2
DO., each subsequent coat, per yd. sup.	0	0	11

SUNDRIES

Fibre or wood pulp boardings, according to quality and quantity.

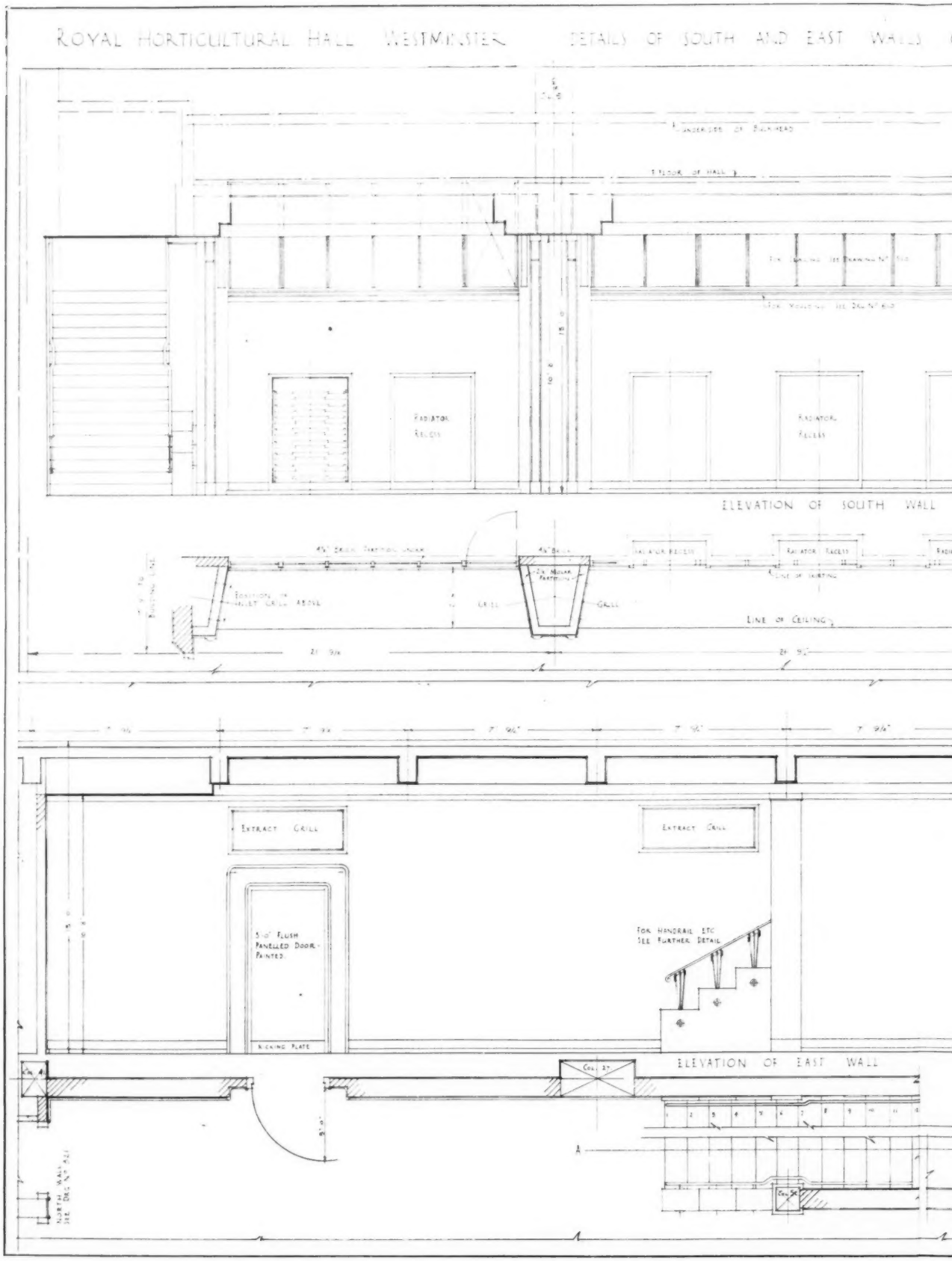
The measured work price is on the same basis . . . per ft. sup. £0 0 2½

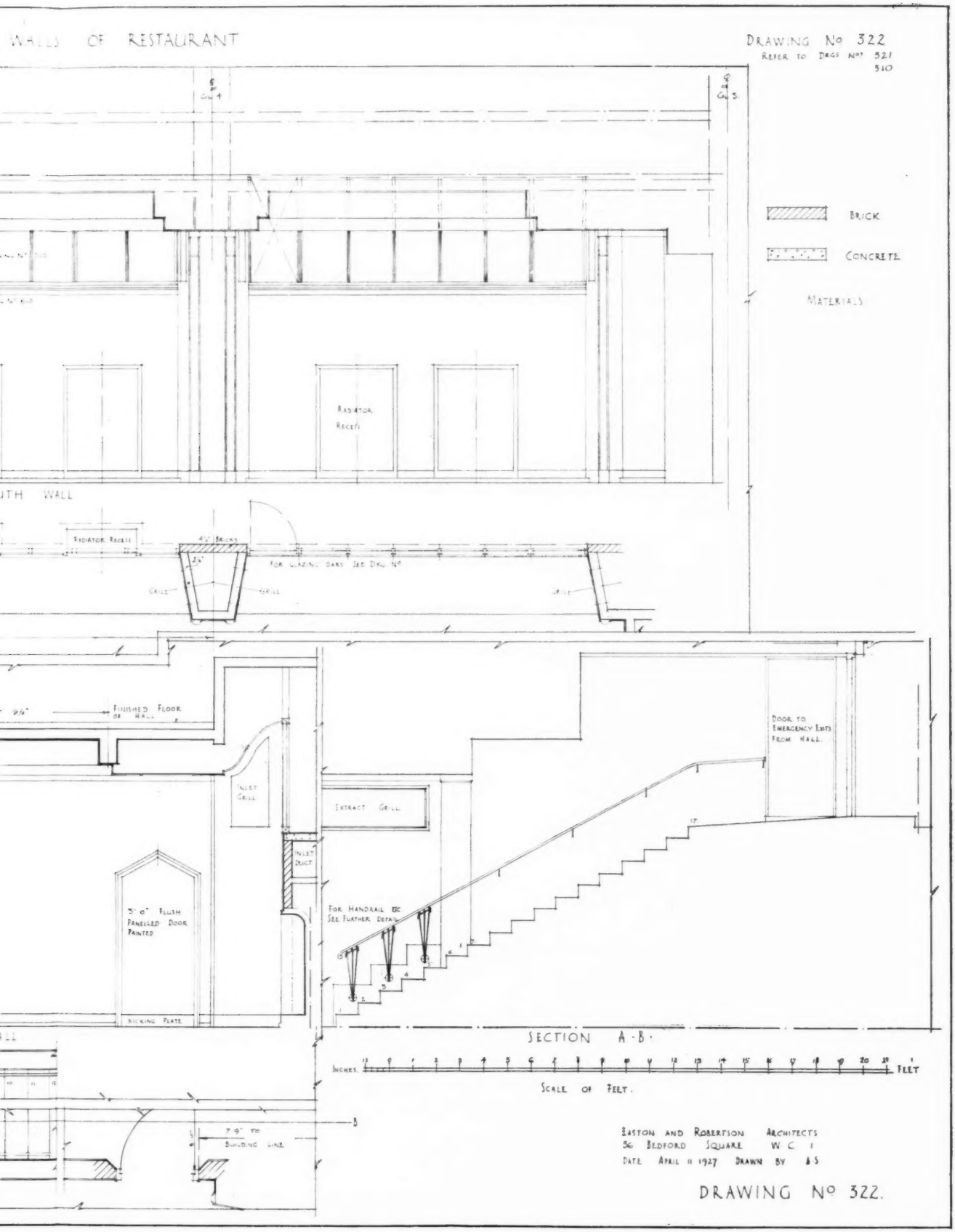
FIBRE BOARDINGS, including cutting and waste, fixed on, but not including studs or grounds per ft. sup. . . . from 3d. to	0	0	6
Plaster board, per yd. sup. . from	0	1	7
PLASTER BOARD, fixed as last, per yd. sup. . . . . from	0	2	8
Asbestos sheeting, 5/32 in., grey flat, per yd. sup.	0	2	3
DO., *corrugated, per yd. sup.*	0	3	3
ASBESTOS SHEETING, fixed as last, flat, per yd. sup.	0	4	0
DO., corrugated, per yd. sup.	0	5	0
ASBESTOS slating or tiling on, but not including battens, or boards, plain "diamond" per square, grey	2	15	0
DO., red	3	0	0
Asbestos cement slates or tiles, 5/32 in. punched per M. grey	16	0	0
DO., *red*	18	0	0
ASBESTOS COMPOSITION FLOORING : Laid in two coats, average ⅜ in. thick, in plain colour, per yd. sup.	0	7	
DO., ½ in. thick, suitable for domestic work, unpolished, per yd.	0	6	
Metal casements for wood frames, domestic sizes, per ft. sup.	0	1	
DO., *in metal frames, per ft. sup.*	0	1	
HANGING only metal casement in, but not including wood frames, each	0	2	10
BUILDING in metal casement frames, per ft. sup.	0	0	7

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

PLYWOOD, per ft. sup.

Thickness	5/16 in.			¼ in.			3/8 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	—	—	—	—	—


ROYAL HORTICULTURAL HALL WESTMINSTER
DETAILS OF SOUTH AND EAST WALLS
RADIATOR RECESS
RADIATOR RECESS
ELEVATION OF SOUTH WALL
LINE OF CEILING
EXTRACT GRILL
EXTRACT GRILL
5'-0" FLUSH PANELLED DOOR - PAINTED
KICKING PLATE
FOR HANDRAIL ETC SEE FURTHER DETAIL
ELEVATION OF EAST WALL



THE ROYAL HORTICULTURAL HALL, WESTMINSTER. BY EASTON AND ROBERTSON. DETAILS OF SOUTH AND EAST WALLS OF RESTAURANT.