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THE ARCHITECTS' JOURNAL & Architectural Engineer

With which is incorporated "The Builders' Journal."

FROM AN ARCHITECT'S NOTEBOOK.

Tell me that the Chelsea Power Station is as beautiful as the Parthenon at Athens and I'll believe you. Everything is beautiful, even the ugly—why did Whistler paint the squalor of the London streets, or Brangwyn the gloom of a steam-crane? To subscribe to any one particular profession, mode of life, doctrine, philosophy, opinion, or enthusiasm, is to cut oneself off from all the rest—I subscribe to all. . . . Leonardo da Vinci, racked with frustrate passion after the universal, is reported to have declared that only to do one thing and only to know one thing was a disgrace, no less.

W. N. P. BARBELLION.

9 Queen Anne's Gate, Westminster.

Interior of the Cathedral of Torcello

The cathedral dates originally from the middle of the seventh century, but has seen several restorations, notably towards the ninth and at the beginning of the eleventh century. Notable features of the interior are the elegantly wrought marble columns, mosaic floor, and antique apse.

THE

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A Heaven for Good Buildings

THERE was an age in English art and literature when there arose a reaction in favour of ancient things, in which poetical numbers were full of ivied walls, and the most popular novels of the day (what they now call the Tales of Terror, but what they then called Gothic Romances) were invariably set in ancient castles, with dungeons and ghosts and clanking chains. A few lines from Blair's "The Grave" embody the spirit of the time:

> See yonder hallow'd fane! the pious work
> Of names once fam'd, now dubious or forgot,
> And buried midst the wreck of things that were;
> There lie interred the more illustrious dead.
> The wind is up: hark—how it howls! Methinks
> Till now I never heard a sound so dreary.
> Doors creak, and windows clap, and night's foul bird
> Rock'd in the spire, screams loud! The gloomy aisles
> Black plaister'd, and hung round with shreds of 'scutcheons
> And tatter'd coats of arms, send back the sound
> Laden with heavier airs, from the low vaults,
> The mansions of the dead! Rous'd from their slumbers
> In grim array the grisly spectres rise,
> Grim, horrible, and obstinately sullen
> Pass and repass, hush'd as the foot of night!
> Again the screech owl shrieks—ungracious sounds!
> I'll hear no more; it makes one's blood run chill.

The passion for ruins went to such lengths that people actually erected artificial ones, and altogether there was a general inclination to take much more interest in a ruined ancient building than in a fine new one. When a new building did make its appearance, then it was the fashion to fall to thinking how it would look when it was old—to gaze ahead to that time when its gilded vaults, which now sprung so loftily, should lie in rubbish beneath the feet; when the wind should whistle through the broken arches, and the owl hoot from the shattered tower; and the ivy twine round the fallen column, and the foxglove hang its blossoms about the tumbled stones. Royal Academicians would even busy themselves in meditative paintings of such scenes (*vide* page 769). It was a pretty conceit, though one which might have been regarded as "beyond a joke" if pushed too far, for whomever else's building might be allowed to fall into decay, no architect ever precisely expected it of his own. It is in the sureness of our own immunity that we are best able to jest.

What would Soane say, the great Sir John, if he could come back just now and see his Bank even as J. M. Gandy, A.R.A., drew it for him, with the handsome rotunda half gone, and the Soane halls open to night and day? No man likes to see his work served thus. Some there be to whom the perpetuation of Stonehenge or the Diplodocus is a matter of large indifference, in whom arises no joy in the fruit of the conservator's art. Yet over the question of *self*-perpetuation, these men will be as desirous as others. Few men save Buddhists relish the idea of self-extinction. No one likes the thought of the carrion worm in the seat of intellect, nor of the housebreaker's pickaxe in his *chef d'œuvre*. "All men think all men mortal, but themselves," and every one of us believed that Earth, while having sucked down so many Ninevehs and Hecatompyloi, would at least leave our own St. Paul's.

But "Men's Workes have an age like themselves; and though they out-live their Authors, yet have they a stint and period to their duration"—so wrote Sir Thomas Browne, excepting only the holy Scriptures from the teeth of Time.

> The cloud-capped towers, the gorgeous palaces,
> The solemn temples, the great globe itself,
> Yea, all which it inherit, shall dissolve,
> And, like this insubstantial pageant faded,
> Leave not a rack behind.

In the war against Time—aided too often by the perversity of man—the great buildings have been falling fast of late. Death—(to use military language) death would seem to have "thrown himself astride their path." Westminster Abbey has been threatened, St. Paul's has suffered in the fight (and the monkey-gland treatment prescribed, stimulating for the moment, may hurry it all the more quickly to the grave). Lincoln and Winchester Cathedrals have been attacked, Waterloo Bridge is to be brought low.

One wonders whether there is any Valhalla to which the great buildings go when they have given up their shapes here on earth. It is a thought too terrible to think of their being for ever lost. Blessings on the modern psychologists, who tell us that though much may be forgotten, nothing can be lost. According to William James's attractive "world-memory" idea, the whole history of the Earth actually exists, and some occultists claim to have revealed such seemingly inaccessible material as life on lost Atlantis, or in Knossos. And we like to believe that, as a sound once uttered can never die, so may architecture, that "frozen music," and all beautiful forms created, linger for ever, as images or faint abstractions, in the clouds—a fancy perhaps too idle, but possibly permissible as some relief from the ravages of man and time.

Notes and Comments

"Chartered Architect"

The request of the Council of the R.I.B.A. that all corporate members of the Institute should describe themselves as "Chartered Architects," as they are now entitled to do under the provisions of the Supplemental Charter, 1925, is, we believe, much agitating the professional mind. It is thought officially that the general use of the term will educate the public as to what is implied by the R.I.B.A. qualifications, "pending the accomplishment of Registration." But suppose, for the sake of argument, that Registration is not accomplished; is it intended that the description should remain? If so, who will use it? Is there not more dignity and weight in the simple description "architect"? (which, in the meantime, let it be remembered, will become associated in the public mind solely with unattached practitioners). But suppose that Registration is accomplished; what becomes of the term "Chartered Architect"? Answer: It becomes automatically extinct. It is manifest, therefore, that whether Registration be accomplished or not, the term can have only a temporary significance. Thoughtful persons are asking whether any useful purpose can be served by adopting a description that at some time in the future (possibly the near future) is almost certain to fall into disuse. Apart altogether from the question of professional expediency, there is, we think, some ground for the view that such designatory changes, following, perhaps, in quick succession, are more likely to disturb than to reassure the public mind. We have no wish to say a single word that could possibly hamper the work or interfere with the policy of the Institute Council, but knowing the difference of opinion that exists upon this subject we would urge that an effort be made to secure the views of members so as to ensure some uniformity of practice.

Architecture and Identity

Lord Peel, in his witty speech at the R.I.B.A. dinner, poked much good-natured fun at governmental architecture. He professed to be greatly perturbed by the fact that the palaces of Whitehall give no outward indication of their internal purpose. Let us be thankful that this is so. While holding no brief for the Government offices, we much prefer them as they are if the alternative is "symbolical" architecture—which usually means a serious outbreak of decorative carving on the façades: anchors and dolphins on the Admiralty; Roman body armour and "crushes" of antique weapons on the War Office; overflowing cornucopiæ on the Ministry of Agriculture, and so forth. These devices are apt to pall, though no more so than those conventional groups of symbolical sculpture whose identity is usually so much in doubt that they have to be labelled "Peace," "Industry," "Education," or what not. Architecture may be enhanced by sculpture, but it can do without such adventitious aids to beauty, and if the purpose of every building were manifest, how dull life would become! Half the pleasure of existence is in not knowing and having to find out. But we must not allow things to become too difficult; there is neither pleasure nor profit in wasting half a day journeying to Acton only to find that one has confused the Ministry of Pensions with the Office of Woods, Forests, and Fisheries. Hence we would urge that every Government office should be plainly labelled, preferably in lettering of the good Roman type.

Convert the Old or Build the New?

The Stoke-on-Trent Guardians were presented, at their last week's meeting, with a choice that not only public bodies, but private building owners, frequently have to face. It was found necessary to acquire or erect a couple of buildings to be used as country homes for children and aged persons. Two empty mansions, Betley Hall near Crewe, and Dilhorne Hall near Stoke-on-Trent, were offered to them at very reasonable prices. The House Committee, however, after going carefully into the question, decided that although the initial expenditure on an old mansion might be considerably less than the cost of a new one, its maintenance would be such a heavy burden that the ultimate cost would be greater. A building deteriorates with age just as a machine does, though not, of course, so rapidly, and it is notoriously bad business to purchase a second-hand bicycle or typewriter. They usually come dearer in the long run. In buildings, however, there is a compensating factor which should not altogether be overlooked. Old buildings are often more stoutly—we do not say more strongly—constructed than modern ones, and the thickness of walls and structural members, even where it does not carry with it greater strength, may be a valuable thing from many points of view. Especially is this true in urban areas, where noise and vibration are the enemies of human happiness as well as of structural stability.

"Cinderella" at the Academy

A critic of the architectural exhibits at the Royal Academy calls attention once again to the seemingly rather grudging hospitality accorded to this department of the arts. It might have been supposed, the critic insinuates, that Sir Aston Webb's tenure of office as President would have secured better treatment for the profession which he adorns. We are quite unable to share this view, which, on reflection, the critic himself will be glad to repudiate. Sir Aston assuredly felt, as any gentleman in his position must always feel, that his plain duty was to the Royal Academy rather than at all specially or markedly to that department of the arts with which he happens to be most intimately associated. Nor do we for a moment suppose that the members of that profession had the slightest desire or expectation that, as President, he would think it compatible with his position to press his influence in favour of architectural exhibits. Architects will, we are sure, entirely sympathize with the strictly impartial attitude which Sir Aston has always, from the outset, strictly maintained. Reforms in the architectural department are no doubt very desirable; nobody questions that greater consideration should be accorded to architectural exhibits than that implied in poking them into the obscure corner to which they are always relegated; but such reforms should come from outside, or at all events quite independently of any appearance of favouritism rather than through the advocacy of a president, whose functions are purely judicial; and Sir Aston is to be praised rather than blamed for consistently so regarding them.

A New Art?

At the Queen's Hall, on Saturday, a demonstration was given in which the colour, form, and movement of light thrown upon a screen was controlled by an operator. The inventor of the instrument used, Mr. Thomas Wilfred, claims to have added a new and independent art to the accepted hierarchy of music, poetry, painting, and sculpture. He calls this the art of light. The demonstration consisted of the movement, mainly in an even progress over the surface of the screen, of the primary colours, and the general effect may be likened to that of cloud produced by the latest contrivances for realistic lighting in the theatre. Whether the manipulation of colours into changing harmonies constitutes a new art is questionable. Apparently Mr. Wilfred has only added movement to colour patterns, which are, perhaps, a trifle more ancient than the Chinese. For ourselves we felt that as much entertainment was to be got from the manipulation of a magic lantern upon a screen of smoke, or even more familiar ways.

The Bank of England

Some Imaginary Conversations

By H. J. BIRNSTINGL

"GOOD MORNING, Gandy; what have you there to show me? Ah! the ruins of my rotunda. . . . So that's how you forecast its decay. It recalls to me a rustic scene by Serlio, or Piranesi himself might have begot the composition. I think it's a pretty conceit, and right full of the romantic spirit. Alas! for you, that the taste for grottos and artificial ruins is now passed, for I see you have a ready aptitude for such things. But you know it is not so that I foresee the Bank's decay. Nevertheless, I like well enough your picture, and I have in mind an apt verse we'll put beneath it, and then let it hang on the Academy walls. 'Architectural Ruins—a Vision,' we'll call it, and then beneath it a quotation from Shakespeare's 'Tempest.' I need not specify the passage that seems most appropriate to the occasion.

"But modern London, Gandy, will not present a rich decay like ancient Rome, to enchant the visitor, and as for my Bank it will not live for long. I do not say with Wren, 'I build for eternity;' a century, maybe, and then the building will no longer be able to fulfil the needs which the growth of England will bring about."

For a brief space, Gandy seemed to be rather at a loss to comprehend Sir John's exact meaning.

"What, then, Sir John, do you think they'll destroy this masterpiece? Forty and odd years of labour, is it to count for nought? Is it to count for nought that you have shown to posterity the adaptability of the classic style? Is it a violent end rather than a gentle sinking to senility that you prophesy?"

"Last night, Gandy, I had a dream, and in it I revisited this very building after a lapse, maybe, of a century. All around the base of my walls surged great horseless vehicles packed with a dark-clothed populace, which leaped in and out, and rushed here and there like febrile ants. Within the encircling walls were men busy with picks and shovels demolishing the interiors. I asked what was in progress. Rebuilding of the Bank, they told me. Then, as I looked, I saw rising before me, like a vaporous cloud, which gradually hardened into solid form, a massive building. Away behind my encircling wall it rose, looking like some great hotel, with sloping roof, which had a strange, incongruous rural air, I thought. But this, they explained to me, was owing to some regulations which governed the heights of buildings."

"And what of the style of this new building; is it in keeping with your own?"

"No; here I must confess a mortifying disappointment. My principles seem to be held in no esteem. Taylor, rather than Soane, is the model that they've taken, so that my outer walls, which they had preserved, and some of my interiors which they had reconstructed, strike a still more modern note, or so it seemed to me, than the work I beheld in my dream. It is said that after so long a life my work seems to carry with it no influence. So, you see, if my vision be a true one—and I somehow feel that it is, so vivid did it seem—you are wrong to speak of my influence on posterity. Why, you see now that not one of my pupils, not even Basevi, carries on my ideas. No, this wave of classicism has carried all before it in its impetuous progress, and nothing now will satisfy them but exact transcriptions from the ancient, unless it be this Gothic movement, or young Barry and his astylar work, to which I must confess I'm somewhat partial, for it shows what I deem an essential quality; a certain fitness for its purpose. I own that in my Paper Office* I owe something to the Travellers' Club.

"But come, I waste your time and my own. Finish your painting of the Bank's decay."

II

"Now, Shee,† that we've disposed of that matter, let me show you this painting of Gandy's which I propose sending in this year. My own epitaph, you'll perceive; but as I told him, the end will never be like that. And lately I've had one or two prophetic dreams, for I'm ageing fast, and my sight gives me trouble again, ever since my operation,‡ I've never been quite free from pain.

"In my last dream I visited London again, and Chambers was with me. The first thing we saw was Nash's new street; but not a building of his remains, nor yet my block. In their place are tall stone buildings, a series of *pastiche* that neither of us relished. Next Somerset House passed before our gaze, and Chambers rejoiced to see his masterpiece so little spoiled, although Rennie's bridge was sadly mutilated. But what surprised him was to see a new giant neighbour across the way. Some great new governmental building, we surmised; but, no, it was but a honeycombed hive of business offices. Then, passing eastwards, we saw St. Paul's, looming as ever, majestic above the City, but when we entered in we found the crossing and the choir all barricaded, and we were told the mighty fabric was in imminent danger of falling. It seemed that Wren's dome was endangered, and that they were strengthening the great piers by pumping into them cement. Some said the remedy was useless, and that the dome must collapse. Then we proceeded eastward to my Bank, there to behold five stories rising above my own. When Chambers saw this, he turned to me and said: 'I see that I need not have had so much anxiety about you. If my "Civil Architecture" bore no fruit neither did your audacities. I must admit that before I died I looked on you with fear. I'd tried so hard to keep your feet on the straight and narrow path of strict Palladianism, and you forsook it, starting, I feared, a school of modern jargon. Yet I see they treat you with not much more ceremony than you treated Taylor. How they resented your destruction of his work, and how they hated yours, calling it contemptible, and many other names! Yet now I see that you, like me, had scarcely any followers. The modern movement which I thought you'd planted never flowered. It seems to me, there's never been a modern movement. They'd have done better, judging by what I see, to keep their noses to Palladio's pages.' With that he disappeared and I awoke. Poor Chambers. I remember when he introduced me to the King, and after gave me that long letter of advice, before I left for Italy. What hopes he had of me! Then I came back, and at once forsook all orthodoxy; he never quite forgave me. Yet in a century from now there will be architectural chaos, and neither of us will be heeded. My own opinion is that too many books spoil good architecture, and this the future seems to show.

"Before you go, Shee, let me have your opinion of this case that I've just designed for one of Vulliamy's§ clocks. And before I forget it—my memory is fast deserting me—there's that matter of Barry's election. . . . ."

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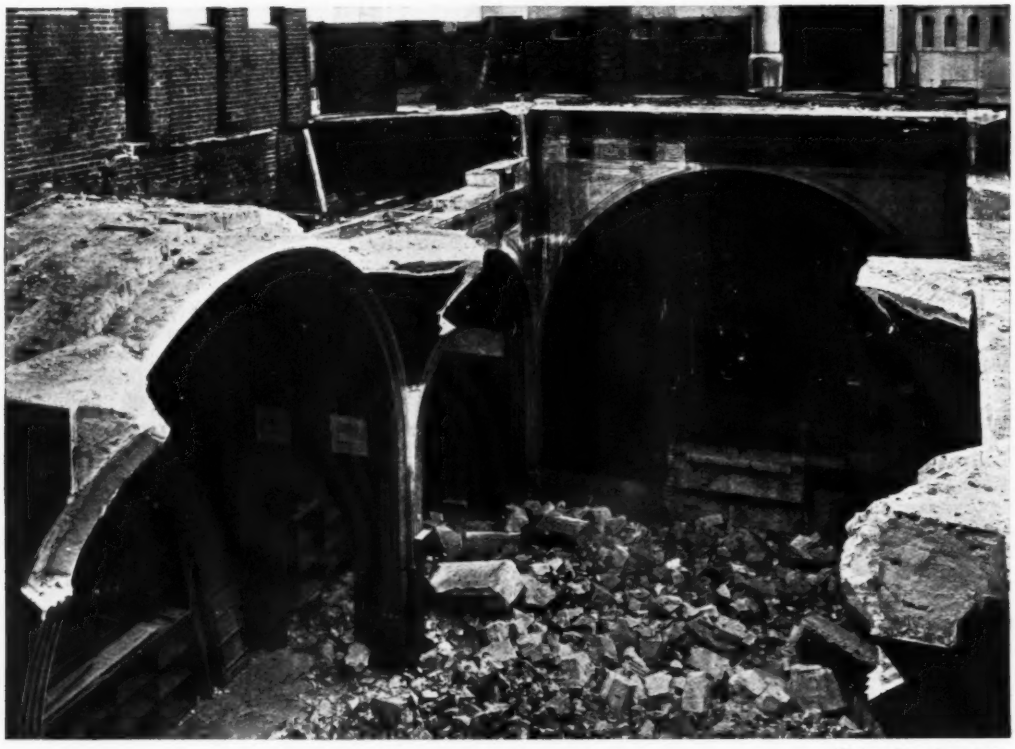
* State Paper Office, 1829–33. Destroyed 1862.
† Sir Martin Archer Shee, P.R.A., 1830–1850.
‡ Operation for Cataract in 1824.
§ B. L. Vulliamy, Clockmaker, of Pall Mall.

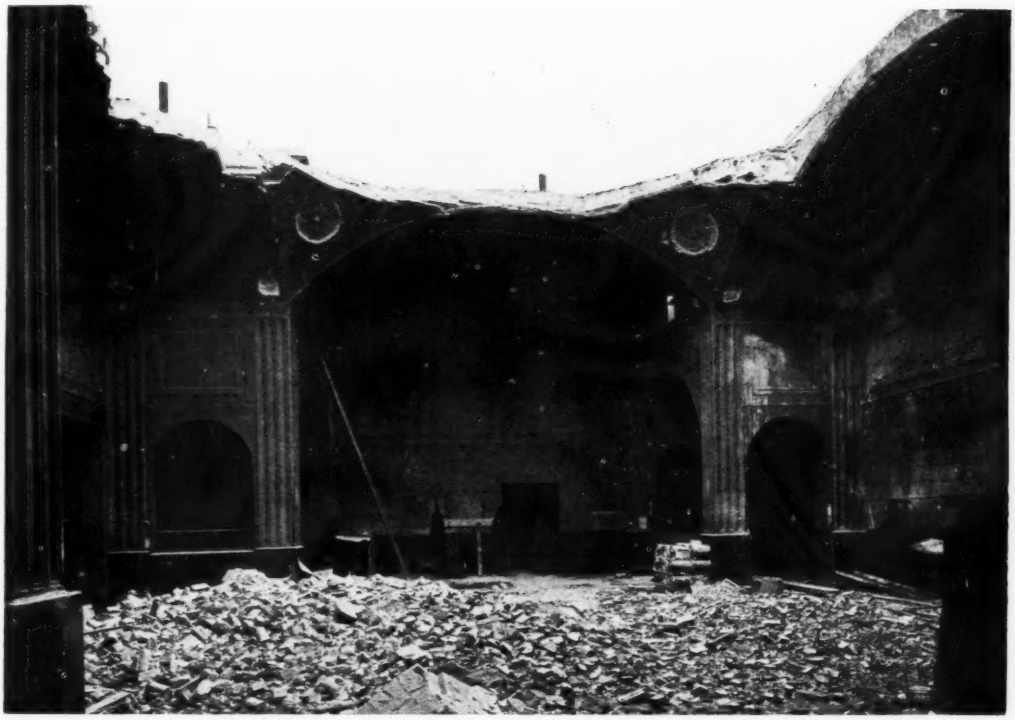
THE OLD DIVIDEND OFFICE.



THE OLD SHUTTING ROOM.

Photos: Humphrey Jocl.

THE DEMOLITION OF THE BANK OF ENGLAND.



THE BANK STOCK OFFICE.

Photos: Humphrey Joel.

THE BANK STOCK OFFICE.

THE DEMOLITION OF THE BANK OF ENGLAND

Photo: Humphrey Joel.

THE DEMOLITION OF THE BANK: THE COLONIAL OFFICE.

ARCHITECTURAL RUINS: A VISION. THE BANK OF ENGLAND: THE ROTUNDA AND FOUR-PER-CENT. OFFICE.
From the original water-colour by J. M. Gandy, A.R.A., made for Sir John Soane, R.A.
(By permission from "The Works of Sir John Soane.")

Architectural Style—4

Number and Punctuation

By A. TRYSTAN EDWARDS, M.A., A.R.I.B.A.

THE vertical division of façades or whole buildings into two parts causes a discord only when these parts are approximately equal, and when there has been no attempt at that grouping or pairing of the two halves which I described in my last article as *conjugation*. It may be noted that although I confined my illustration from Nature to a single diagram of a butterfly, the duality of whose wings was completely resolved by this delicate shaping of two members so that in association with a central member much smaller than themselves they formed an organic unity, Nature abounds in innumerable other examples of animal and vegetable forms equally expressive of the principle of conjugation. A previous volume, entitled "The Things which are Seen," contains an attempt to analyse some of these animal and vegetable species, with a view to showing that animate Nature is the supreme exemplar of *formality* in design. Thus a new naturalism is being here expounded, for whereas it has commonly been held that a "naturalistic" school of design is one which would seek to impart into architecture the element of freedom and "chance" apparent in certain aspects of Nature, the grammar of design is the very antithesis of this romantic principle, which exalts the fortuitous at the expense of what is conditioned by the dictates of logic. In natural scenery it is true that the juxtaposition of trees, mountains, rivers, and clouds must necessarily contain an element of chance, and such scenery is undoubtedly beautiful, so a certain school of critics have jumped to the conclusion that this beauty was born of chance, and if we only worship chance in architecture, we shall attain beauty there also. These are the folk who show the greatest hostility to the formulation of principles of design. They misinterpret the beauty that exists in natural scenery, because although this has indeed a background of chance, it is not chance which really captures their admiration, but the formal element present in the inevitable disposition of mountains, valleys, rivers, and the effects of light and atmosphere, for even the latter are harmonized through their subservience to natural law. Moreover, part of the charm of scenery often consists in vegetation and the evidence of animal life.

Organic Development

This advanced organic development of plant and animal I take as my exemplar of all the æsthetic subtleties which we should strive, albeit with incomplete success, to incorporate into our architecture. If we could give to a building that perfection of inter-relationship between its parts which distinguishes even the lowest members of the animal or vegetable kingdom we should be not men, but gods. Something, however, of the organic quality to be found in animate Nature is apprehended in the categories of Number, Punctuation, and Inflection. If these principles are complied with in the design of a building, not merely the semblance of life, but a measure of life itself has entered into it. There is one respect, however, in which architecture must transcend the forms of animate Nature. A city is not comparable to an assemblage of animals of various species. It is not altogether pleasant to visualize a group of buildings which have taken to themselves the characteristics of widely diverse animals, one building being based on the physiognomy of a lion, a second resembling a horse, a third a dove, and yet another a caterpillar. That is not the meaning of the new naturalism. The organic qualities which should distinguish a building are common to *all* animals and plants, and it is purely accidental if we take one animal or plant rather than another as an example by which to fortify the formal argument. The chief distinction is that while the *subject* of buildings is entirely human, their *form*, on a much lower plane of development, is akin to the forms of animals and plants. Buildings, however, transcend the latter in this one particular—namely, that they must comprise a society of which the units are related to one another far more intimately than are the units in the animal and vegetable world. A city is a society of organic architectural units, which is itself organic. The various styles of architecture will be judged by reference to the degree in which they enable this object to be achieved.

Animate Nature cannot violate the principle of Number, because each unit of it is one unit and not two units. This is obvious. But, it may be objected, does not Nature also deal with two things at a time? Of course it does, but if these be of equal value to one another and parts of the same organism Nature invariably conjugates them to form a pair. The human hands, feet, in fact, the limbs of all animals are in pairs most elaborately and completely conjugated. The horns, antlers, ears, and all features, large and small, which are found in pairs, are made mutually interdependent so that no single member (even when we glance at it quite cursorily) seems sufficient unto itself. And conjugation is in all instances supplemented by the provision of a third and central member which forms the focus of the composition.

Unresolved Duality

Because Nature abhors an unresolved duality, is that a sufficient reason that architecture should display a similar aversion? Suppose that the subject of an architectural composition *demands* a duality. Are we not, then, playing pranks with the subject, distorting the subject and depriving it of its true expressiveness if we insist that it shall show a formal unity when its very constitution happens to be dual? Let us discuss this difficult question with reference to the horizontal division of façades into tiers of windows. Here we immediately come upon an architectural situation in which the principle of Number seems somewhat of an intruder. For who dare contend that when it be found convenient for a building to consist of two stories of equal height, each having its own row of windows also of approximately equal size, such an arrangement should be surrendered in favour of one which does not comply so well with the particular needs of its occupants? Of course, where we are dealing with ornamental features, such as domes, towers or spires, even an uncompromising utilitarian might be inclined to adopt a tolerant attitude towards the claims of the formalist and admit that if in unessential features we have a choice between a unity and a duality, let us have the unity by all means; but where the duality belongs to the architectural programme itself, it must surely remain. We must give due weight to this argument. It was a principle of warfare expounded by Napoleon that an opponent should always be attacked at his strongest point. In order to counter the most formidable objection to the very first article of the Grammar of Design, I have sketched a few examples dealing with types of building in which a formal duality might appear at first sight to be not only pardonable, but necessary. Fig. VIIIA shows a street of cottages having two rows of windows. It happened to be a practical and economical solution of the problem of cottage design that there should be neither more nor less than two floors, and that the windows should be disposed in this particular manner. In this case it may be urged that the façade

suffers not only from duality, but from other defects as well, such as the general meanness and monotony of its design. Yet it can easily be imagined that even if we shorten the row, and elaborate the windows by means of decorative features, the effect of duality will remain. We look at the top row and then at the bottom row, and then seek refuge by turning our gaze upon the roof, but do what we will we cannot find a resting-place for our attention. We here become aware of an elementary condition of the human mind itself, namely, that it cannot regard as a satisfactory object of observation that which has not the quality of being a single object. This singleness is attained either by unity or by a plurality capable of being conceived as a group. Thus the dislike of unresolved duality is not a personal prejudice, but merely a recognition of a mental law by which we are all governed. Must we, then, deny ourselves the convenience which attaches to the very common arrangement of buildings in two floors? Certainly not. It becomes desirable, however, to adopt various expedients by means of which although the actual duality of the stories is retained, the duality of the façade has been mitigated. This is one of the most interesting problems of design, and one which is so commonly shirked that I need no excuse for devoting some considerable space to it. Of the many thousand two-floored cottages erected in recent years it would probably not be an exaggeration to say that 95 per cent. exhibit the blemish of unresolved duality in the disposition of their windows. Nor can any excellence of materials or workmanship make up for this defect.

Solving the Problems

The first and most obvious method of approaching the problem is to take advantage of the existence of the doors, and by emphasizing the doors, seek to establish a series of elements sufficiently important to dominate the façade and break the duality of the rows of windows. Fig. VIIIB shows a row of houses in which the doorways have been given porches. These happen to be rather far apart, and they still make it possible for the eye to dwell rather uncomfortably upon the two rows of windows in between, but still there is a noticeable mitigation of the duality.

Fig. VIIIC gives another solution of the problem, in which a series of bay windows is made the principal feature of the façade, and we are entitled to say that this single row of bays has effectively broken the duality of the rows of windows. It is noteworthy that on the two latter examples the formal improvement over example A is accompanied by an improvement in the subject also, because the designs B and C, inasmuch as each separate dwelling-place is better articulated, are a more successful expression of domesticity.

Fig. IXA illustrates another method of mitigating the harshness of duality. In this instance an attempt is made to create a formal trinity by the introduction of panels in the parapet. Here it was important to make each vertical group of units a contracting series, that is to say, the first-floor window is shorter than that on the ground floor, while, of course, the panel is still shorter than the aperture immediately below. Were the first-floor window so small as to be definitely subordinate to the ground-floor window, the duality would already be resolved and the panels would be unnecessary; on the other hand, if the two windows had been of equal height, the addition of a panel of much smaller vertical dimension would not have been sufficient to estab-

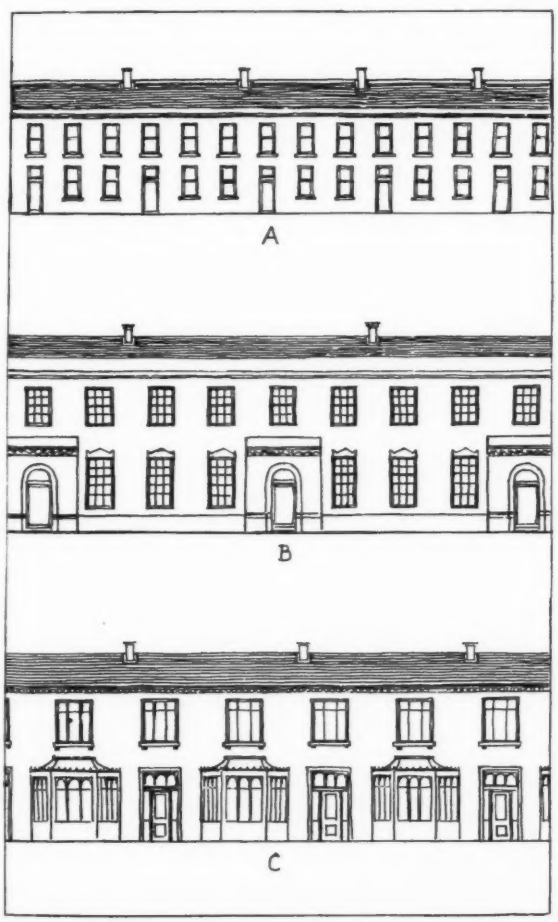


FIG. VIII.

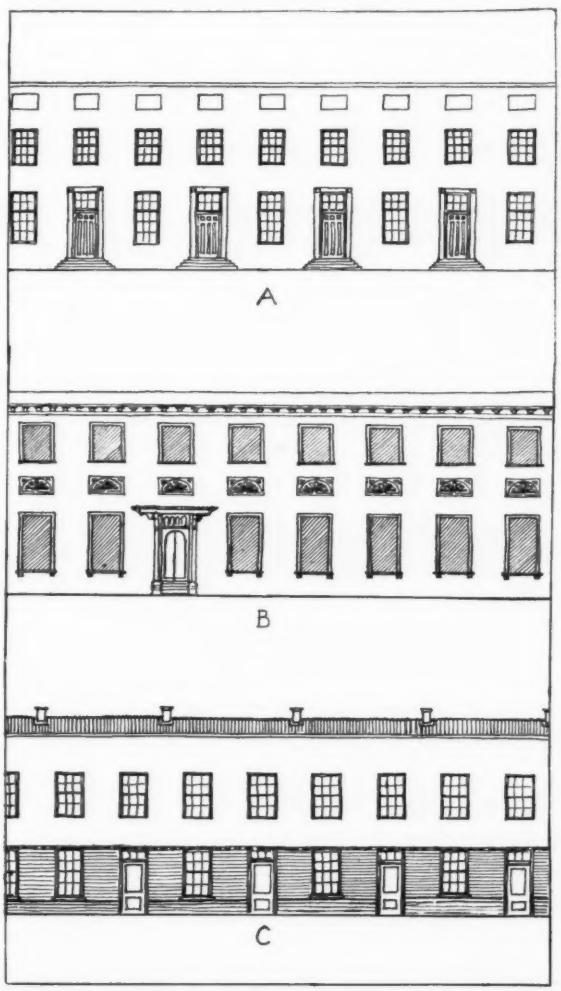


FIG IX.

lish a proper trinity. Even as it is, because the glazed portion of windows is almost sure to be much darker than the wall surface, while the panel is merely defined by the shadow cast by its reveals, the resultant trinity is somewhat lacking in robustness. But frail though it may be, its existence is a pleasant tribute to the law of formality, and with the row of panels the façade is a more mature architectural conception than it would be without them. Needless to say, a strong moulding or cornice immediately below the panels, and separating them from the pattern of the fenestration, would deprive them of nearly all their virtue. In Fig. IXB the panels are placed between the windows, and here, to prevent their presenting the appearance of being crushed by the windows, they are emphasized by ornamentation. It may be asked whether it be not possible to *conjugate* the two rows of windows about this central row of panels, just as a similar resolution of duality was achieved in the case of architectural compositions divided vertically. Windows, however, do not readily admit of being fashioned in the shapes determined by the act of conjugation, for their practical human usage can only be served by shapes predominantly rectangular, and, moreover, in the "butterfly" type of design, symmetry about the central member would appear to be essential. And it will be shown in a subsequent part of the argument that such symmetry would here be a violation of the principle of Inflection, for the pattern of a façade must be otherwise disposed towards its base than towards its summit. In Fig. IXB, however, as in the previous example, an effort has been made to unify the rows of windows by the introduction of a third row, which at least casts over the façade the shadow of a trinity. In Fig. IXC a quite different method is employed. Here, though the windows and stories are really of equal height, the lower section of the façade has the appearance of being subordinate to the upper. Thus the façade has a dominant which successfully prevents the spectator from being too conscious of the duality in the rows of windows. The stucco section acquires a dimension so much taller than the weatherboarded ground story by including in itself a parapet. This is surely a quite innocent deception!

An Eighteenth-Century Example

In Fig. XA, a charming eighteenth-century example, the dominant has been transferred to the lower part of the façade. Behind the arcade is a row of little shops, whose owners also inhabit the floor above. Here the arcade, up to the level of the string-course which unites the keystones, so much exceeds the space of the façade above it that there is no conflict between these elements. But in connection with this building also, I must record a subterfuge. The first-floor level is really at the springing of the arch, and the fenestrated part of the upper rooms facing this elevation have to be approached by steps within the rooms themselves. This arrangement of high arches is partly justified by the necessity to bring more light into the shops, but it is also agreeable to reflect that by means of it the duality of the two floors is quite adequately resolved. Example XB shows yet another attempt to tackle the problem. Here the band of wallage between the windows is given a vertical dimension actually greater than that of the rows of windows themselves. Thus the band of wallage may be considered the central unit, at the top and bottom of which the windows become the delimiting features. The broader the band of wallage, the more completely is the duality of the windows resolved, but in the case of small dwellings there are strict limits to the extent of this interval, and the device can more often be employed in a palace than in a cottage. In Fig. XC the windows are enclosed in arches, but the single row of arches will not dominate over the windows unless the wallage within the arch be also differentiated in tone or colour from the arcade itself. In the four arches on the right of the figure the windows are more successfully unified than in the two on the left.

In Fig. XIA the Classic Order tends to unify the two top rows of windows, but the design has the very obvious blemish that it is quite impossible to determine which is more important, the lower portion or its superstructure. The section below the Order is too big to be a basement, while the section embracing the Order is too big to be an attic. Example XIA shows how three rows of windows do not always suffice to make a formal trinity. Here, as in the previous example, the Order embracing the two upper floors gives them a certain measure of unity, but the windows are still prominent, and the basement story, so emphatically separated from the rest of the façade, and provided with only very small apertures, fails to complete a trinity in the fenestration. It is permissible to suggest that the famous Whitehall Banqueting Hall, by Inigo Jones, has a similar defect.

Where there are three stories of approximately equal height as far as the horizontal division of buildings is concerned, it is easy to comply with the principle of Number, and the reader will call to mind the Italian palaces and numerous other examples, wherein triple rows of fenestration have a most satisfactory formal effect. The principle of Number applies equally to plans and to the smaller features of architecture, including ornament. As a separate article will be devoted to the joint application of all three grammatic principles to both plans and ornament, the discussion of duality may be temporarily broken off at this point.

Degrees of Punctuation

The Figures VIII to XI here shown may serve to illustrate not only the principle of Number, but that of *Punctuation*. The assertion that every object ought to be adequately

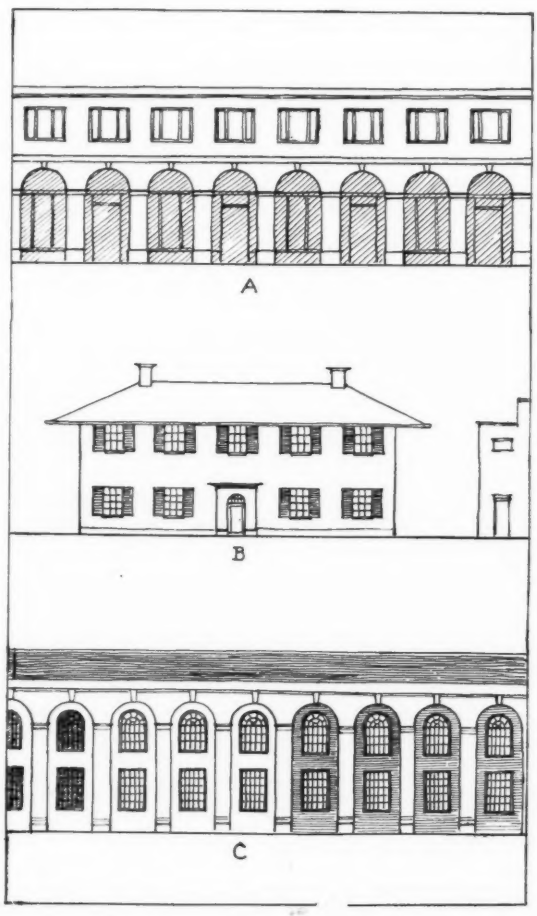


FIG.

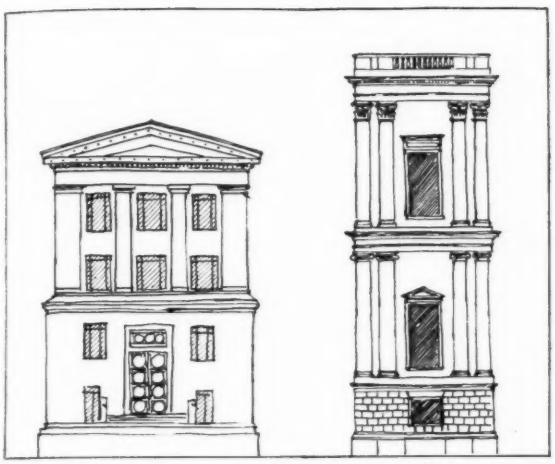


FIG. XI.

punctuated seems to border upon the platitudinous. Yet when we try to elaborate this assertion we shall soon find ourselves in difficulties. A thing must have a boundary, for otherwise it could not become an object of contemplation at all, it would be quite nebulous. But in the case of a building what kind of a boundary or punctuation must it be? There are degrees of punctuation, and it is extremely easy to punctuate either too much or too little. But to begin with, it may be well to examine a few concrete examples. It will be observed that nearly all the façades here shown have plinths to mark their lower extremities, and coping stones or cornices to mark their upper extremities. The porch in Fig. VIIIB has both base and crowning member, the bow-windows in VIIIc are further punctuated by ornament. In Fig. X we see that the columns have capital and base, which make them seem highly conscious of their terminations. The use and necessity of such features, and whether it is at all possible to dispense with them, will be discussed in the next article.

[The previous articles of this series appeared in our issues for March 18 and April 1 and 22.]

Some Home-Made Furniture

ORPHOOT, WHITING, and BRYCE, Architects

THIS furniture has been made by a retired clergyman, the Rev. J. B. White, of Instow, Devon, and shows what can be done by an amateur with an amateur's appliances, with the assistance of the architects in design and drawing. It is further interesting as nearly all the timber is home timber.

The settle is of oak from H.M.S. *Hamadryad*, one of the ships which convoyed Napoleon to St. Helena. It was broken up at Appledore. The trestle table is of Scotch oak, and like the settle is only treated with a wash to give the wood a pleasant cool colour. The cabinet on turned legs is of English oak, with inlay of manandra wood and armour-bright wrought-steel hinges, handles, etc. The French cabinet is of laburnum of a very beautiful warm brown colour, not unlike Kingwood, and used as a veneer over oak. The numerous woods of the inlay are mostly locally cut—apple, pear, berberis, ilex, holly, and many more.

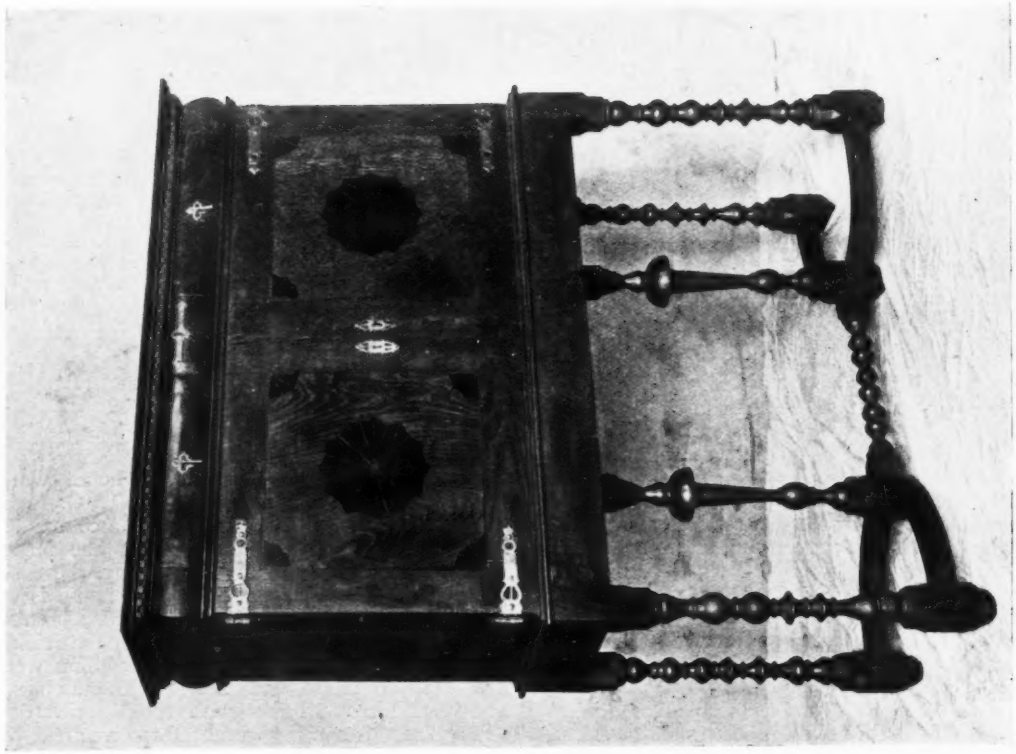
Only for the darkest of the bandings and inlays was it necessary to employ foreign timbers. The whole of the veneers are hand-cut on a small circular saw. The bronze mountings in this case are not home-made. These are made by Messrs. Fournier, of Paris. The marble top is Devon marble (Ashburton).

TRESTLE TABLE IN SCOTCH OAK

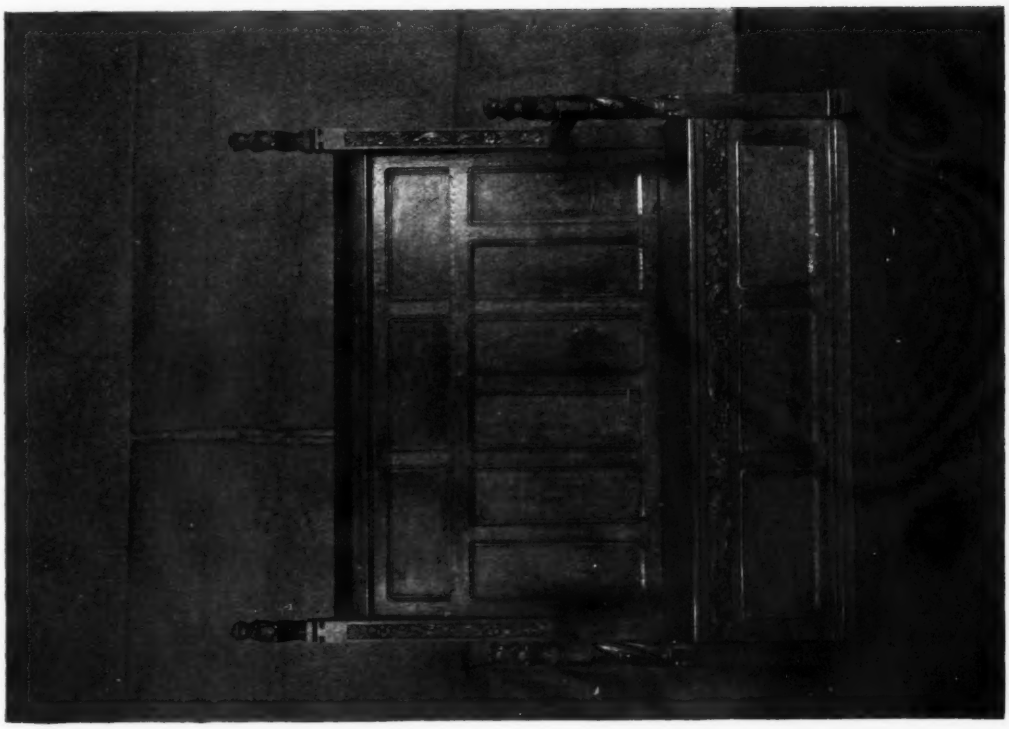
Some Home-made Furniture

Orphoot, Whiting, and Bryce, Architects

Sécrétaire in French manner. This sécrétaire has laburnum veneer bandings, inlay of various British woods, and mouldings and mountings of bronze. The inside linings are of unpolished mahogany.



Cabinet in English oak with inlay of ironbark. The fittings are of wrought iron, armour-bright.



Settle in oak from H.M.S. *Hamadryad*, broken up at Appledore.

Secrétaire in French manner. This secrétaire has laburnum veneer bandings, inlay of various British woods, and mouldings and mountings of bronze. The inside linings are of unpolished mahogany.

St. Joseph's Memorial Church, Leyton, London, E.

E. BOWER NORRIS, A.R.I.B A., Architect

THIS church, opened recently by the Bishop of Brentwood, was erected for the dual purpose of a parish church and a memorial to the fallen in the Great War. Owing to its position amongst buildings of the villa type, it was necessary for the church to obtain its effect by large mass. This had to be kept very simple in view of the fact that the money available was very small for the size of the church required. The main bulk of the tower is relieved very successfully by the use of a multicoloured rustic brick, with stone dressings.

The main architectural feature of the church externally is a large five-light window. In this window is designed in stained glass a huge cross, embellished with emblems of the Passion. The whole of the building, excluding the brickwork of the tower and the side walls, is of steel-frame construction, with expanded metal reinforcement and plaster. This has proved very successful, and has enabled the building, which is of ample proportions, to be built at the minimum cost.

A baldachino is designed for the sanctuary, but owing to lack of funds this has not yet been erected. The temporary altar shown in the photograph is of wood, and is not the one designed by the architects.

The building accommodates 420 seats, and has a wide processional way right round the church, and a large sanctuary with choir gallery in the tower. The side chapels are arranged so that the centre of the altar comes on the centre line of the aisle. The total cost, including boundary walls, heating, and electric light, was £8,000.

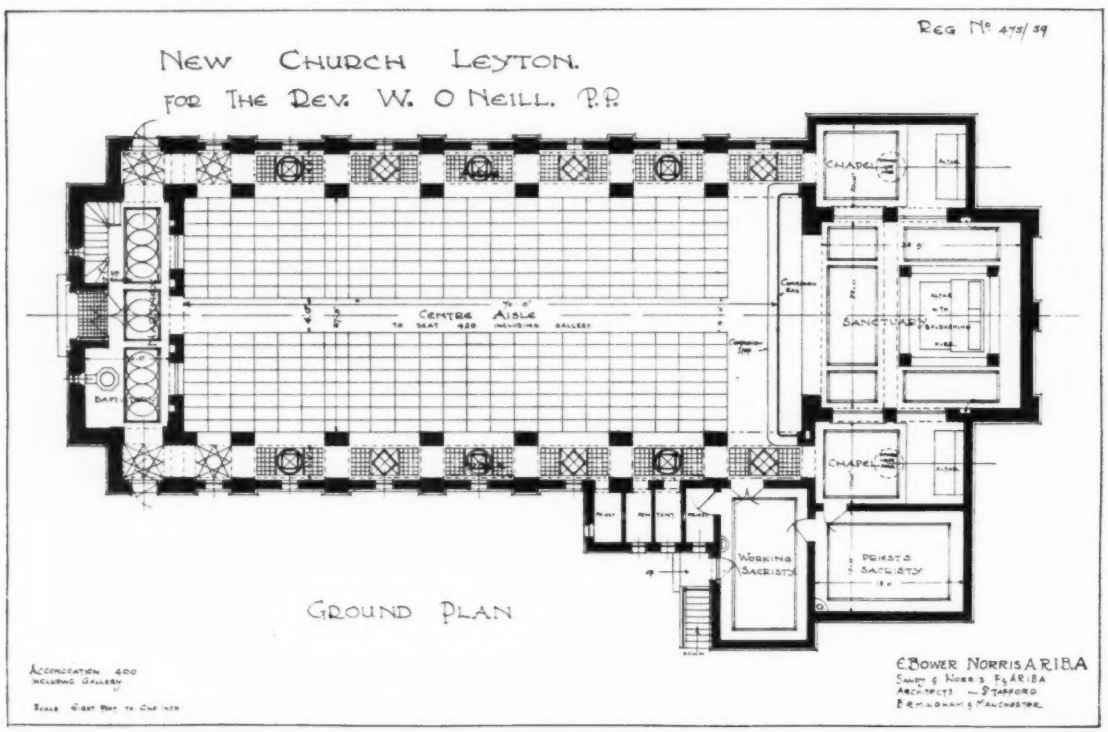
The architect was Mr. E. Bower Norris, A.R.I.B.A., of the firm of Sandy and Norris, F. and A.R.I.B.A., Stafford.

The builders were Messrs. W. J. Maddison, Ltd., of London, and the sub-contractors were as follows: Couzens and Akers, Ltd., Birmingham (heating and electric lighting); The Empire Stone Co., Narborough (stone dressings); J. Ashton-Floyd, Manchester (sculptural work); Jos. F. Ebner, London (wood-block floors); Blockley, Ltd., Hadley, near Wellington (multi-coloured rustic bricks); Stratford-on-Avon Guild, Stratford-on-Avon (leaded lights); J. J. Gibbons, Ltd., Wolverhampton (door furniture); The Bennet Furnishing Co., Ltd. (seating); Edward Wood & Co., Manchester (steelwork); Bromsgrove Guild, Bromsgrove (railings and gates); Jones and Willis, Birmingham (altar railing and gates).

A Small House at Prestbury

On pages 783-5 we illustrate a house which has been erected at Prestbury for Mr. T. G. Russell, of Manchester, barrister. It is designed as a country cottage. Owing to its position at the base of the Macclesfield Hills, and the small size of the building, the design has been kept as simple as possible. The house is enclosed within a square of 28 ft., and an attempt has been made to obtain the maximum accommodation in the minimum of space. The materials used for the building were local stone slates, obtained from several old buildings in the vicinity, and rustic bricks with rubble brick dressings. The dressings are specially arranged to give great variation in tone. The floors to all the rooms on the ground floor are oak wood blocks on concrete.

The architect was Mr. E. Bower Norris, A.R.I.B.A., of Stafford, whose church of St. Joseph, at Leyton, is also here illustrated, and the builders Messrs. Brown and Son, of Wilmslow.



Modern Ecclesiastical Architecture. 35.—St. Joseph's Memorial Church, Leyton, London

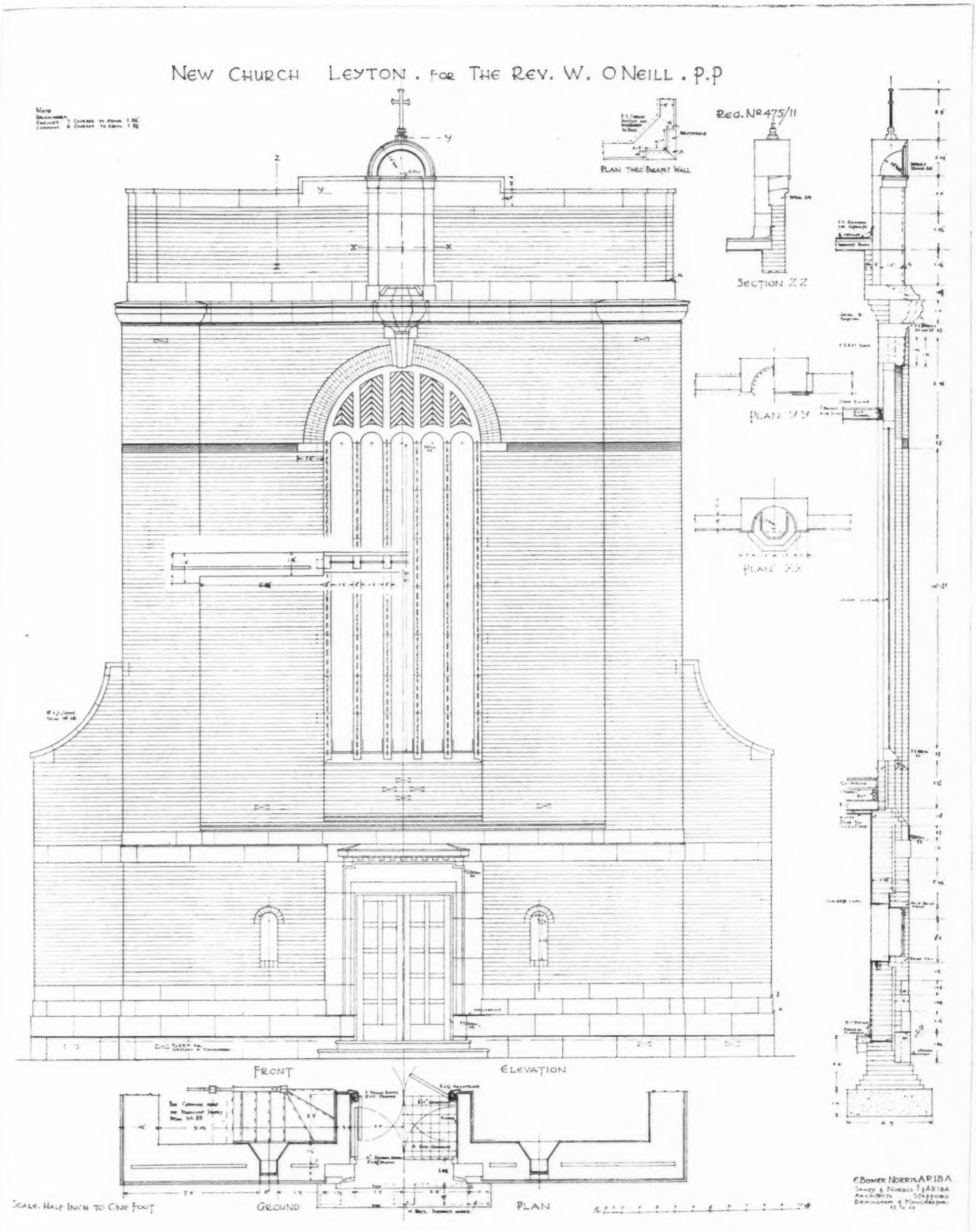
E. Bower Norris, A.R.I.B.A., Architect

The whole of this church, except the brickwork of the tower and the side walls, is of steel-frame construction, with expanded metal reinforcement and plaster.

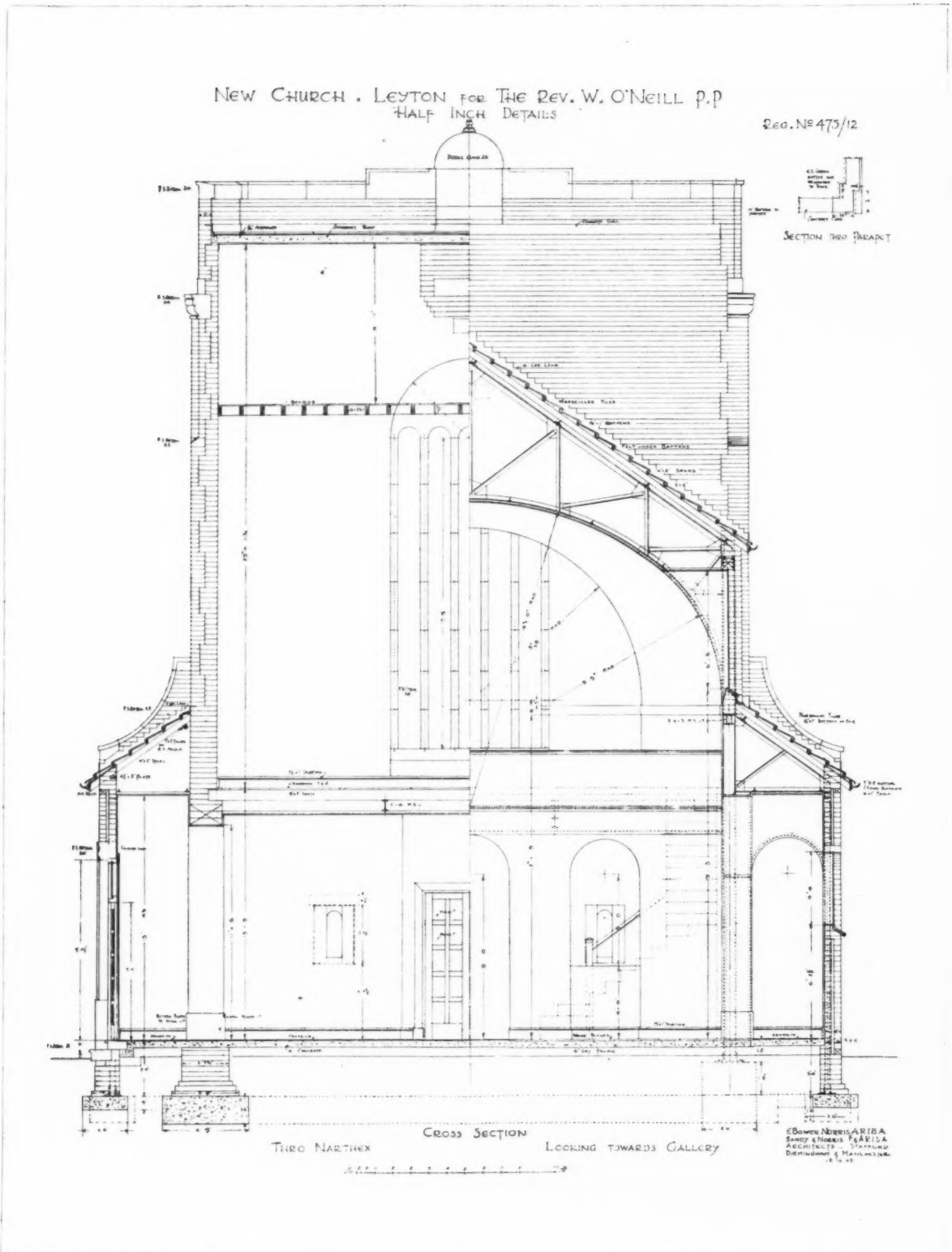
Modern Ecclesiastical Architecture. 36.—St. Joseph's Memorial Church, Leyton, London

E. Bower Norris, A.R.I.B.A., Architect

The church accommodates 420 seats, and has a wide processional way right round the building. The temporary altar shown is of wood, and is not the one designed by the architects.



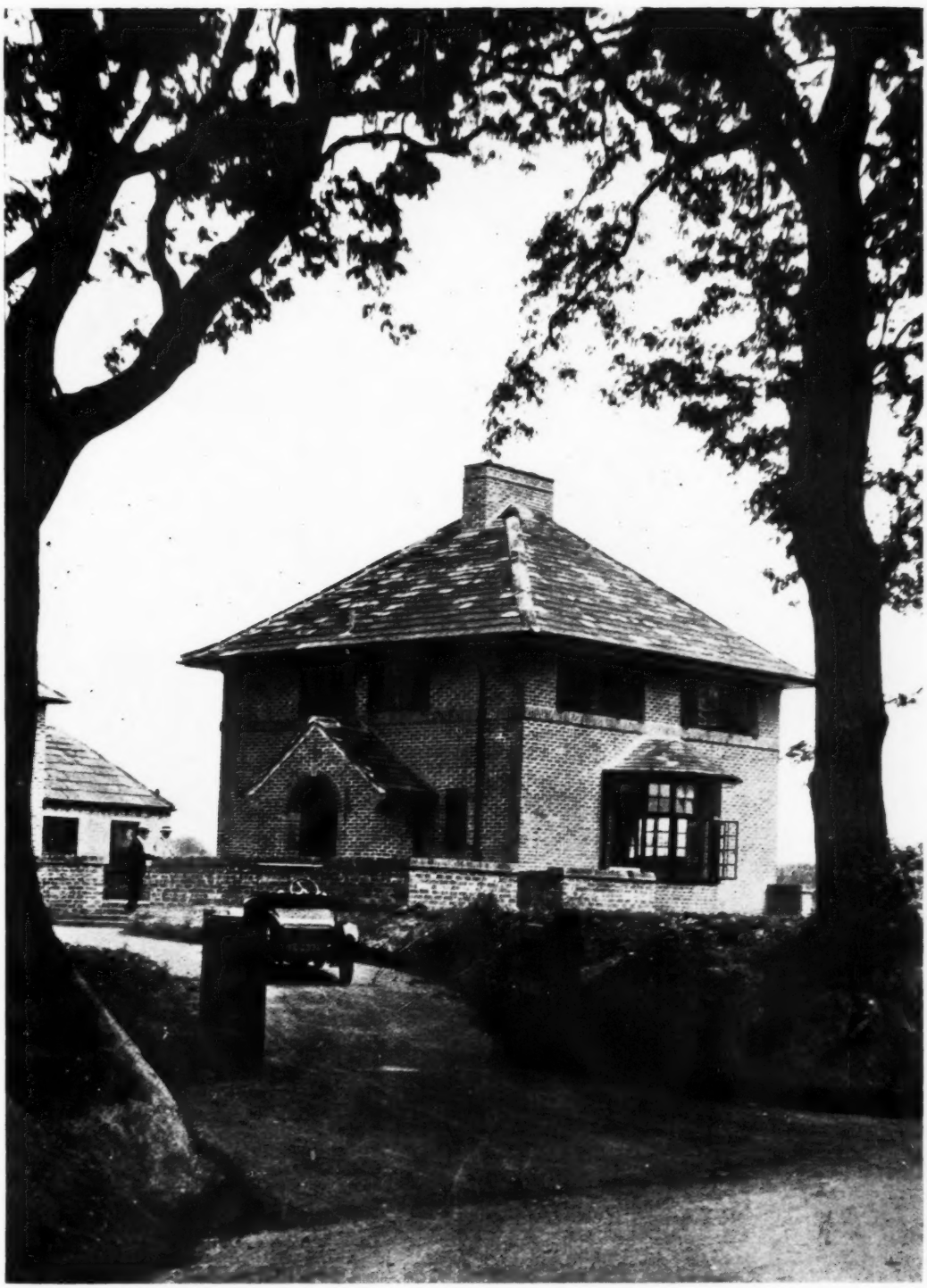
ST. JOSEPH'S MEMORIAL CHURCH, LEYTON, LONDON. E. BOWER NORRIS, A.R.I.B.A., ARCHITECT.



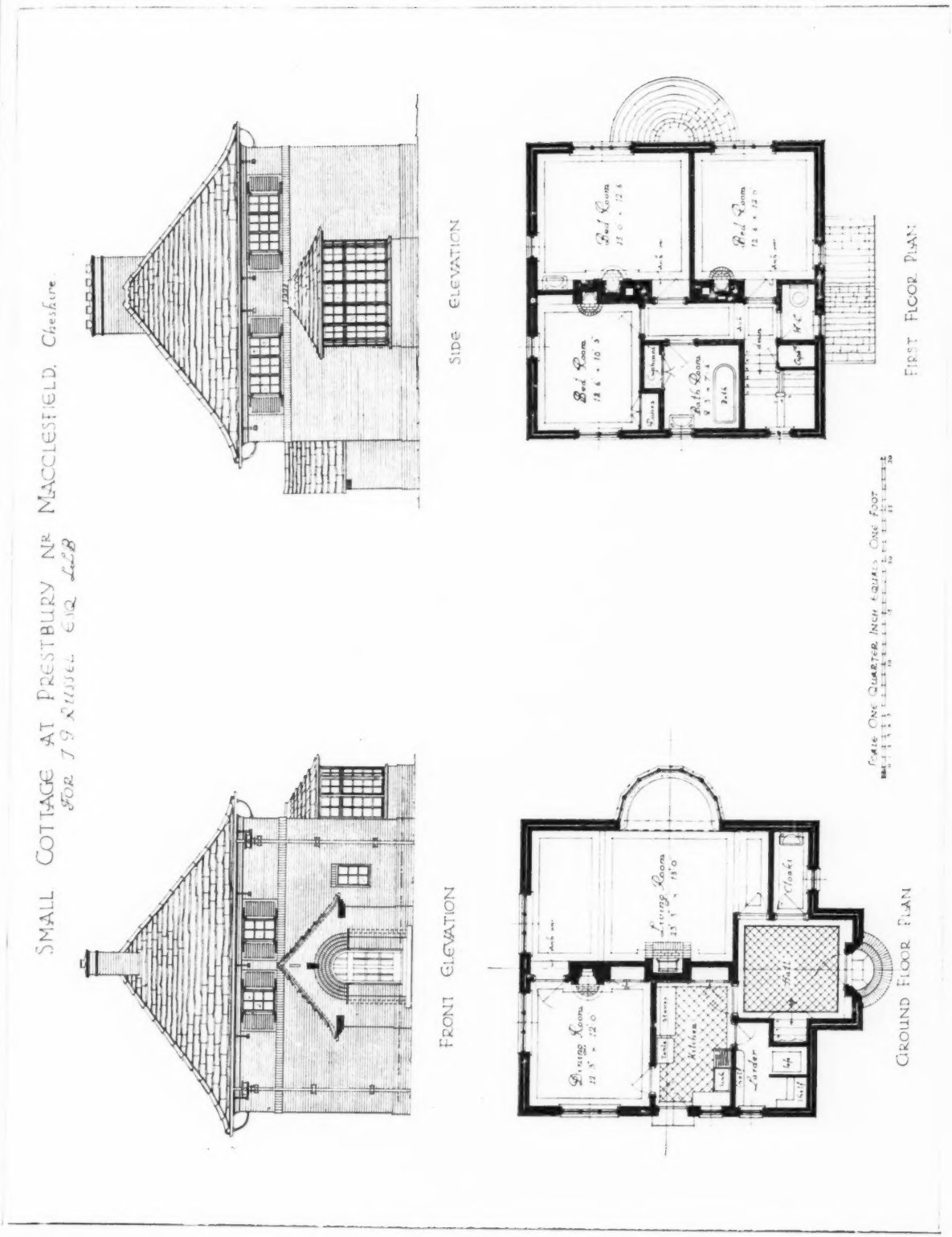
ST. JOSEPH'S MEMORIAL CHURCH, LEYTON, LONDON E. BOWER NORRIS, A.R.I.B.A., ARCHITECT.

Modern Domestic Architecture. 118.—A Small Cottage at Prestbury, near Macclesfield

E. Bower Norris, A.R.I.B.A., Architect



Owing to its position at the foot of the Macclesfield hills, and its small size, this house was kept as simple in design as possible. Rustic bricks with rubble brick dressings were used for the walls, and the roof is covered with stone slates from old buildings in the vicinity.



A SMALL COTTAGE AT PRESTBURY, NEAR MACCLESFIELD. E. BOWER NORRIS, A.R.I.B.A., ARCHITECT

Little Things that Matter—46

The Vault in Modern Architecture

By WILLIAM HARVEY

IN engineering practice, the vault has already been adapted to modern materials, needs, and emergencies. Trench shelters of stamped corrugated steel, barrel-vaulted huts, and the gigantic vaulted hangars of reinforced concrete erected for housing aircraft, all demonstrate the feasibility and the economy of the vault for enclosing either a large or small space under the conditions applying at the present day. In most ancient vaults of Gothic design the compressive strength of stonework formed the principal resource of the constructor. On the other hand, the modern builder employs and exploits the tenacity of the building materials at his disposal, and seeks for materials possessing great tensile strength in order to impart rigidity to the vault.

So far, modern architecture in England has responded but feebly to the opportunities opened up by the engineer in his adaptation of tenacious materials to vault construction. The examples usually built in England follow as yet no regular system of constructive design, and fall into four principal groups :

1. Sewers, cellars, kilns, furnaces, and ovens are still vaulted largely in accordance with a living tradition, which dates back to the remote past.

2. Some few modern buildings are provided with vaults of solid material as part of a sumptuous architectural scheme, and these may generally be classed as examples of conscious archæological revival of vault construction in accordance with the style adopted in other buildings of some past period.

3. Imitation vaulting in plaster is suspended for ornamental purposes within an enclosing structural frame of walls and beams, which actually carry the weight of the construction.

And there are (4) the engineering vaults built with reference to tenacious principles and materials, but in these the question of appearance is almost altogether ignored.

While the first two descriptions are admirable in many respects, and need never be considered out of date where solidity and permanence of construction are demanded, their cost is prohibitive in ordinary work. Expense for specially shaped material in the vault itself has to be added to the cost of strong abutments, and though some few individual builders may be able to erect them without centering in the case of certain special works, the greater number of architectural vaults are constructed upon centres that are themselves elaborate and expensive. Imitative works that are merely decorative are also comparatively costly, and while they are at least as interesting as any other form of unconstructional decoration, they are not free from a common objection, applying to imitations in general, that they are not the genuine thing, and have a curious knack of proclaiming the fact by some trivial detail that escapes the care of the designer until after erection.

These disharmonies might be avoided, and a consistent scheme evolved, if, instead of the use of flimsy ornamental vaults, the method in vogue among modern engineers were resorted to, and the beautiful decorative surfaces of vaulting were constructed as parts of a veritable support. In the majority of cases where it is proposed to suspend imitation vaulting to a structural frame it would be possible to substitute a scheme of genuine tenacious vaulting provided that the thrusts were adequately restrained by reinforcement, either in the vault shell itself or the surrounding walls and partitions. What the Gothic masters achieved by means of buttresses of unlimited projection would now be accomplished by anchoring the springing of the vault to the side walls of the compartment by means of tensile reinforcement. (See Figs. 1 and 2.)

Provided that the thrusts are restrained, it does not matter whether this action is performed inside or outside the enclosing walls of the building, though where tenacity of material is counted upon it is of vital importance to see that it is present in fact, in the form of reinforcement adequately protected from decay by corrosion or other causes.

In a vaulted design of this kind, where it is desired to eliminate external buttresses and to dispense with excessively thick walls, the whole walled compartment is regarded as a single constructional unit or box, of which each side possesses a dual function. First, it must be capable of transmitting any lateral pressures it receives to its own ends, where they will be anchored back in the return wall; and, secondly, it must satisfactorily anchor back the pressures transmitted to that return wall in a similar way. Each wall is therefore a beam slab, subjected to outward bending stresses across its thickness, and to tension in the direction of its length, and must be made capable of meeting these pressures with safety. Reinforcement applied to the walls of a chamber for this purpose may be inserted either horizontally, vertically, or diagonally, or in all directions at once, by the use of suitable forms of steel mesh adequately connected to one another at the seams and continued around all corners and junctions of surfaces.

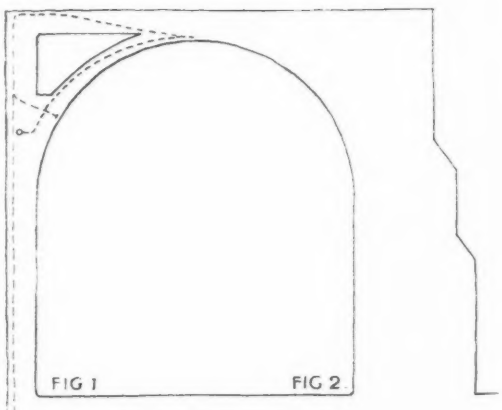
Within such a reinforced self-buttressing compartment the vault need not necessarily be reinforced, though on the principle that prevention is better than cure it would be reasonable to use all means to diminish the amount of the lateral thrusts produced by the loaded vault. This might be done by adjusting the section of the vault to spring from points low down in the walls with a curve calculated to fit the loads; by giving to the lower parts of the vault springings the form of cantilevers projecting from the wall surface, or by means of reinforcement in the vault shell. (See Fig. 3.)

All these methods of thrust control could be put into operation simultaneously, and in a large building, or where the utmost economy of material was essential, it would be worth while to do so.

The device of building the lower portion of the vault springer as a cantilever was used in most countries where vaulting has been a normal and habitual method of covering a space. (See Fig. 4.) The advantage of so doing is that the weight of the cantilever gives to the wall a tendency to fall inwards against the thrust of the vault, which tends to overturn it in the opposite direction. Wherever this principle is utilized the cantilever must be strongly formed, and the wall in which it is built must be capable of resisting the bending pressure induced by it. Examples of the failure of the cantilevered vault springers of Gothic times are by no means rare, but in the majority of cases the practice has been justified by the results, and sufficient tensile strength could now be assured.

Where reinforcement is introduced in the vault shell, centering might be dispensed with by suspending the surface covering to the reinforcement during construction, and experiments directed towards the elimination both of external buttresses and of temporary shuttering are needed if vault construction is to be made inexpensive enough for general use.

The search for cheap forms of domestic building to meet the house shortage has already introduced the steel frame covered with metal lathing for rendering outside, and a vaulted variety of this type of house has already been proposed.



THE WALLS OR PIERS SUPPORTING A VAULT TEND TO FAIL BY OVERTURNING, SLIDING OR BENDING MOVEMENTS WHICH MAY BE RESISTED BY TENSILE REINFORCEMENT FIG 1 OR BY EXTERNAL BUTTRESSES FIG 2

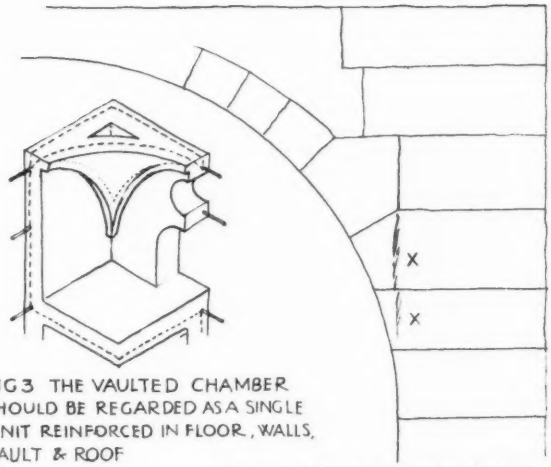


FIG 3 THE VAULTED CHAMBER SHOULD BE REGARDED AS A SINGLE UNIT REINFORCED IN FLOOR, WALLS, VAULT & ROOF

FIG 4 CANTILEVER SPRINGINGS ARE VALUABLE AIDS TO EQUIPOISE BUT SHEARING AT X MUST BE AVOIDED

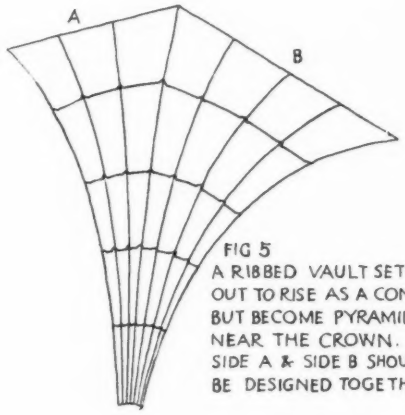


FIG 5
A RIBBED VAULT SET OUT TO RISE AS A CONE BUT BECOME PYRAMIDAL NEAR THE CROWN. SIDE A & SIDE B SHOULD BE DESIGNED TOGETHER

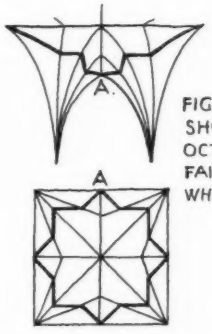


FIG 6 LINE OF LIERNE RIBS SHOWS AS AN INTERESTING OCTAGONAL STAR IN PLAN BUT FAILS TO DO SO IN PERSPECTIVE WHICH FLATTENS OUT POINT A

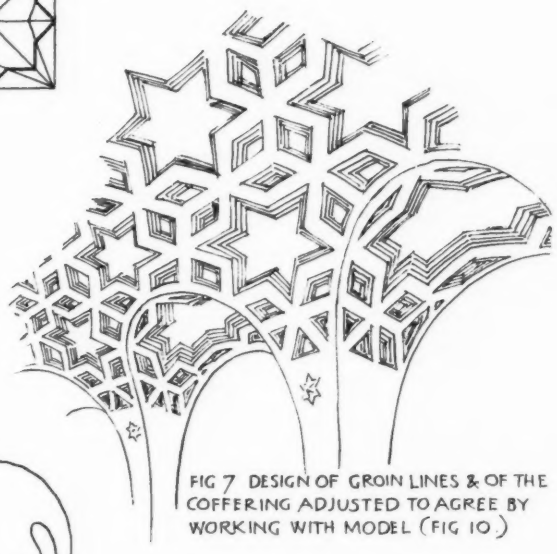


FIG 7 DESIGN OF GROIN LINES & OF THE COFFERING ADJUSTED TO AGREE BY WORKING WITH MODEL (FIG 10)

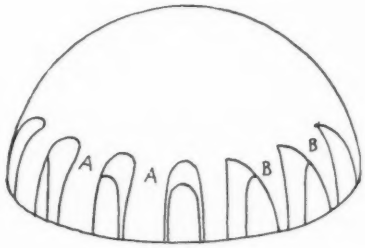


FIG 8 GEOMETRICAL INTERPENETRATION LEAVES UGLY PIERS AT A.A THE GROIN MAY BE MADE STRAIGHT ON PLAN AS AT B & THE WINDOW VAULT MODELLED TO FIT

FIG 10. VAULT DESIGN ON MODELLED CONVEX CENTRE GROIN LINES ADJUSTED BY ADDING CLAY AT A

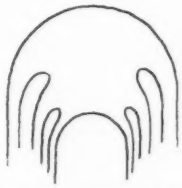


FIG 9 APPEARANCE OF WEAKNESS & INSTABILITY DUE TO UNSUITABLE LINES OF INTERPENETRATION

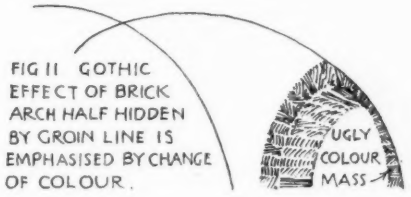


FIG 11 GOTHIC EFFECT OF BRICK ARCH HALF HIDDEN BY GROIN LINE IS EMPHASISED BY CHANGE OF COLOUR.

LITTLE THINGS THAT MATTER DIAGRAMS. DRAWN BY WILLIAM HARVEY.

By-laws which insist upon standard heights for ceilings, and those which establish standardized formulæ for the calculation of strengths, naturally tend to suppress invention in modern vaulted construction, and adjustment on the basis of equivalent values in air space and strength should be permitted. As things are, the design of modern vaulting is far too largely an affair of imitation. It is now well known that the arch ribs of many Gothic buildings were used to economize timber centering, but few architects would now venture to use them for this purpose. In modern work they are principally ornamental, for stiffness of the vault shell could be obtained just as readily by other means.

Instead of simplifying the centering, the provision of special sinkings in the joinery surface for ribs and bosses adds very greatly to its complexity and to the labour lost in its construction.

The use of a close-boarded hemispherical centre on which to build a simple dome is another costly anomaly of modern construction that would have appeared extraordinarily lavish and wasteful to Byzantine builders. Even supposing a dome to be composed of concrete and not of bricks, it would be quite possible to cast it in manageable units and to assemble them upon a light, but rigid, frame of steel reinforcement without close shuttering, and so save part of the expense that now renders vaulted forms almost prohibitive in England.

The division which modern practice places between the design and the erection of buildings also tends to restrict their use. Shapes that can be simply explained by means of models are sometimes made to appear terribly complicated upon plan, section, and elevation. The modern architect is seldom in a position to know by experience all the details of vault construction, and still less is he equipped to make experiments and compare the relative good qualities of alternative methods.

A contractor tendering from drawings and specification may be keenly alive to the importance of executing the work at a reasonable cost, but he is not usually privileged to advise any departure from the normal routine of construction by the use of "centres." A revival of vaulted construction in English architecture is more likely to come about through the enterprise of specialist producers of building materials, who realize that the commodities they make and sell have some suitability for this beautiful and rational form of construction. In the meantime the artistic side of vault design is a matter of importance, and may be regarded either from the standpoint of line or colour. Ribbed vaults naturally come within the first division, but the most satisfactory genuine Gothic examples also possess such excellent arrangements of the main surfaces that the utmost projections of the ribs conform to simple, solid geometrical forms that would still present fine gradations of light and shade even if the sunk panels were all to be filled in level with the ribs. (See Fig. 5.)

Modern design should undoubtedly proceed in the same way, and finely modelled main masses should be provided before the sections of the ribs are designed.

It cannot be emphasized too strongly that a geometrical mesh of intermediate and lierne ribs that appears pleasing on plan should be subjected to revision in connection with the dihedral angles of the vault surfaces. (See Fig. 6.)

If an accurate model cannot be made, a perspective drawing carefully set up from a possible point of sight would afford some clue to the alteration made in the apparent positions of the lines of ribs by the salient and retiring portions of vault masses. Where vaults are decorated with geometrical cofferings instead of ribs, a model is even more useful as an aid to design in that the scale of the coffering is rather less a matter of precedent, and the actual coffers must be arranged to hit or miss pleasantly along the groin lines. (See Fig. 7.)

Failing a complete model the surfaces should be developed as accurately as possible, and the coffers set out in relation to the springing, crown, and groin lines. True-shape diagrams of this kind can be made to form parts of models by bending the paper on which they are drawn and connecting the several surfaces at the groins. The bent paper is not so satisfactory as a plastic model as a basis for constructive criticism, for the relief of the coffering is not indicated, and its interference with the lines and surfaces is more or less a matter of conjecture. Some of the subtler aspects of vaulting interpenetrations are not easy to visualize on a drawing, or even upon a paper "true-shape" diagram.

Round-headed windows in the lower part of a dome or apse are frequently designed in such a way as to leave an uncomfortable bottle-shaped piece of dome surface between one window and the next. The ugliness of this disposition of solids and voids is not very apparent on a set of line drawings, but is lamentably obvious in the finished work. The trouble arises through the failure of the designer to realize that there is no particular reason why the jambs of the windows should be parallel vertical planes. Really there is nothing to prevent their being splayed to meet the inner surface of the dome in any agreeable line he may determine. (See Fig. 8.)

The proportions of solid to void, and the shapes of both light and dark masses, are just as important in the surface of a vault or dome as upon the façade of a building, and the possibilities of fine lighting effects need careful handling. Small barrel vaults interpenetrating a larger barrel vault often sin in these respects. The geometrically determined line of interpenetration appears as a wandering curve when seen in the perspective, and only looks well when the sizes of the minor openings bear certain proportions to the total span and to the width of solid piers left between them.

Windows and piers of equal widths are generally monotonous in effect, and where the groin line reaches only about half-way to the crown of the main vault, a peculiar sprawling effect is produced, as if the upper part of its surface were supported upon a series of pairs of bandy legs. (See Fig. 9.)

Where the side vaults are either larger or smaller than this unpleasant middle size the effects are not so pronounced. But it is sometimes worth while to depart from the abstract geometrical line of interpenetration, to make the groin lines straight on plan and splay the surface from the window-head or lunette to fit the arbitrarily selected groins. In the one case the vaults are regular, and the groin lines, though determined geometrically, are irregular and unsatisfactory; in the other case the main vault and the groin lines are regular, while the smaller one is made to the shape of an irregular truncated cone. Though geometrically irregular, it is not noticeably so, and the effect as a matter of light and shade is far more satisfactory. The balance of lights and darks about the groin line becomes a matter of still greater importance when the main arches or the lunettes of the wall surface are in a different colour from that of the vault. The projecting groin line amputates a fragment of coloured arch, and gives it the appearance of a spoilt or crippled curve, turning it from a rounded shape to a pointed one. This may, of course, occur in any case, but it most decidedly does not call for emphasis in colour. (See Fig. 11.) Raising and straightening the groin lines as above described, and avoiding unmanageable contrasts of colour above springing level, are remedies for this state of affairs. Models are of the greatest value in settling such points, for the groin line that shows round and "Roman" on the drawing is the one that is likely to produce the "Gothic" pointed effect in the lunette, and the obtuse angles of the straightened groins in the model and the executed work create a very different impression from the pointed arch line which represents them in the drawing. (See Fig. 10.)

The composition of a vaulting scheme by means of modelling has the great advantage that the designer's mind is freed from the tyranny of rigid geometry, at any rate in the first creative effort. It may be desirable to reduce the scheme to approximate regularity at a later stage, but to begin and end with a laborious mechanical projection of details does not really amount to conscious responsible design. The clay reveals what the pencil obscures—the beauty of simple curving surfaces which do not necessarily require ornamental ribs and flutings. Lines representing

these details give so much additional interest to an otherwise bald-looking orthographic drawing that the draughtsman is liable to suppose that they will have a proportionately good effect in the building, and concentrates his attention upon them before the main masses have been satisfactorily disposed.

Another value of the model is its adaptability to plans that are not absolutely symmetrical in all their dimensions and angles. Departures from the rectangular worry the modern architect, for he has to think and work in terms of set-square and T-square on the drawing-board, instead of in paces and hand's breadths on the site.

Irregularity of plan had few terrors for the vault constructors of mediæval times, for they either built without centering or with centering improvised as the work proceeded. Differences of dimension were accommodated by making the arch contours slightly different one from another and mixing a great deal of judicious adjustment with their geometry.

At a later date Sir Christopher Wren introduced arches of different outline in the central part of the crypt of St. Paul's Cathedral. Some are semicircular, some elliptical with major axis horizontal, and some elliptical with major axis vertical. The great master may not have required a model in this particular instance, though his use of models and his sculptural outlook upon architectural forms are both notorious. The management of abnormal shapes of vaulting came easily to Wren, and the saucer domes, circular on plan, which crown the high vaults of the nave and choir, are perched upon rectangular compartments by the adroit use of an elliptical barrel vault with major axis vertical enclosing each clerestory window. The pendentives of the four semidomes over the junctions of the aisles at the piers of the dome are also examples of adjustment, and though seemingly regular when viewed from the floor of the cathedral, they are not in reality parts of spheres, but are very considerably elongated upwards to fill in the space between aisle springing and the base of the semidome itself.

The assistance rendered by model making is limited by modern methods of competitive tendering from drawings, since the information obtained by means of the model has to be incorporated on the drawings.

In those favoured countries where the practice of modelling centres full size on the site still persists, the most expeditious vault design is undoubtedly to model the vault to a small scale, and then erect the centre so that its modelled surface is an enlarged "positive" or convex version of the model's concavities. Very delicate and elaborate schemes are made possible by this system of construction, for the beauty of the surfaces is made apparent in the convex centre, and constructive criticism of the most practical sort can be applied by adding or subtracting material until the curves both are, and look, correct. A timber centre is much more costly to alter and adjust than one made with a surface layer of earth, and the many joints would make it difficult to judge effects with the eye in any case. With the modelled centre it is possible to compose spiral flutings, superimposed niches, and the like, and know that the curves will not be crippled in execution, whereas the most accurate geometrical drawing would leave a decided doubt on such a point. Vaults executed in this manner on modelled centres have recently been erected in the buildings of Imperial Delhi.

Book Reviews

Sir John Soane.

Of the eight volumes in the "Masters of Architecture" series, the latest, which deals with the life and work of Sir John Soane, is the most interesting. It is comparable in one sense with the volume on Hawksmoor, for both these men had the rare gift of original creative thought.

The work of Soane is of peculiar interest to-day. He was, as Mr. Birnstingl says, the first modern English architect. Up till a few years ago it might have been true to say that he was also the last. Curiously enough, Soane had little influence on his contemporaries or successors, with the possible exception of Nash. He was ahead of his time, and in many respects maintains his lead to-day. It is odd to compare Soane's work at the Bank of England with the proposed additions shown at this year's Academy. Of the two, the new work is infinitely the more old-fashioned.

Probably there will soon come a period in which Soane will revive in popularity. Architects working on similar lines to his, with an inkling of the same goal, will inevitably arrive at a certain similarity of expression. And others, on the alert for fresh orchards to pillage, will find many of Soane's *motifs* to have the charm of novelty combined with agreeable possibilities of cheapness in execution. For the treatment of concrete, for instance, Soane's buildings are full of suggestion.

Mr. Yerbury's thirty-five excellent illustrations deal very largely with the interiors and exteriors of the Bank of England, and some of the photographs have to-day an almost tragic interest. For complete expression of individuality, mastery of major and minor effects, the palm, however, goes to such buildings as the Dulwich Mausoleum and works like the Gate Lodges and the Bridge at Tyringham in Buckinghamshire. The exteriors of these buildings, and many of the interiors, are inspirationally far in advance of similar work in classic idiom of the year 1925.

It is a thousand pities that to Soane never fell any opportunity proportionate to his talent, and that his work should be so often regarded merely as an example of a curious transition. What remains is still extraordinarily fresh. One feels that the general public will follow Fergusson, and will scarcely comprehend Soane yet awhile, but a book like this is a silent worker in the crusade against indifference, for its brief text is both thoughtful and informative.

HOWARD ROBERTSON.

"Masters of Architecture: Sir John Soane." By H. J. Birnstingl. Ernest Benn, Ltd., London. Price 10s. 6d. net.

Sketching in Water-colours.

Those persons who, a generation or two ago, did not hesitate to declare that the dawn of photography was the doom of sketching, have been by no means justified by the event. In this year's Royal Academy Exhibition, for example, there is abundant evidence that those pessimists were egregiously false prophets. Water-colour drawings are there in prospering plenitude; while the Architectural Room is uncommonly rich in renderings of many buildings that are not yet in being, and have not yet become fit quarry for the direct assaults of the camera.

A further convincing proof of the vitality and prosperity of the dainty art of water-colour sketching is the production of the pleasant little book that is now before us. A sufficiently potent reason why sketching could never be ousted by the camera is, of course, the natural and instinctive preference for hand-work, which always conveys a gratifying assurance of personality—of human selection, sympathy, and control.

One particular drawback of the camera is too faithful an insistence on form—a useful enough feature when fidelity to form is essential; but curiously destructive of artistic values. As Mr. Blake reminds us, for instance, "The form of a London street is hideous. Whistler has produced some admirable 'Nocturnes' by suppressing form entirely, and employing the veiled gradations of foggy air and skilfully managed light and shade to suggest impenetrable mystery. At Venice the sketcher may safely

let one half of his form go to the dogs, and be content to revel in shimmering wealth of colour, where the rose of palaces sinks indefinite into a languid sea; itself wrought over and over with tissue of many-coloured light." This power of control is the main reason why photography has not superseded sketching; the eye of the camera being mechanical and inflexible, as against the sensitive, discriminating, subtly selective human eye.

But the comparison is no longer necessary: it is among *res judicata*. Indeed, Mr. Blake does not make the comparison at all explicitly, but it seems to us to be implied in his luminous discussion of the utility and delight of sketching in water-colours—of the capacities and limitations of the art. Unlike most other treatises on the subject, it conveys essentially technical instruction in a way that combines both clearness and thoroughness, and imparts a refreshing aroma of the author's joy in the art, and his enthusiastic wish to share it. His book is enjoyable to read, as well as profitable to study.

Nor are the numerous little sketches with which the book is illustrated sufficiently elaborate to scare the neophyte. They exhibit no greater degree of skill than that to which he might reasonably aspire to attain after assimilating the advice of this excellent little book, which makes the study of the art as pleasurable as the practice of it.

"The Way to Sketch: Notes on the Essentials of Landscape Sketching; particular reference being made to the Use of Water-colour." By Vernon Blake. Oxford: At the Clarendon Press. Illustrated; 112 pp., 6¾ in. by 8½ in. Price 7s. 6d. net.

Housing Problems in America.

America has, by all accounts, housing problems that are but little less urgent than our own. A stout volume issued as a record of the ninth National Conference on Housing, held in Philadelphia in 1923, begins with this ominous paragraph: "The problem of more and better housing has reached a stage where it has become alarming, and the whole nation is faced with the question of either finding some way of providing houses, or dealing with the aftermath which means disease, sickness, crime, immorality, and discontent, all of which strikes at the very foundation of government—the home."

Thus Mr. Hugh Frayne, who, being general organizer of the American Federation of Labour, can hardly be expected to maintain throughout his article on "Labour's Position on the Housing Question" the abstract and impartial tone of his opening paragraph. In the United States, even as in our own country, it would be thought strange if even on an occasion that ought to be kept purely national—that is, free from partisan views—Capital did not seek occasion to discredit Labour, and Labour to retaliate on Capital, with Government and that "shadowy third" the Profiteer, sharing between them the surplus of blame. Mr. Frayne seems rather to have entered the arena in this fighting spirit, as might have been fairly anticipated of a writer on whom partisanship is a positive obligation. Naturally, he states the case for housing as if he were setting out the case for Labour—a too familiar method of special pleading.

In like manner, it might be supposed that the general manager of the Associated General Contractors of America would seize the opportunity to treat the question from the exactly opposite standpoint of the employer of labour. It is refreshing to note that he does not take undue advantage of the situation, but makes a gallant attempt to hold the balance level; though Labour cannot be expected to agree that he writes wholly without prejudice. In particular, Labour will be but little likely to favour his rather daring suggestion to reduce the number of building-trade crafts from fifty-two to eight or ten. Yet some such consolidation would possibly tend towards the practical economics that might be expected to result from a pruned and simplified organization; but that is a matter about which one would prefer not to dogmatize.

The professions or occupations of the contributors to this book are many and various. Naturally, it is from the architects and engineers that we expect and obtain most light and leading; they being best able to survey the whole ground impartially and comprehensively. On such fundamental questions as cost of labour and materials, on the most economical methods of building, and so forth, Mr. Ernest Flagg, and Mr. Sullivan Jones, as architects of standing, are fully competent to give disinterested and trustworthy opinions. Mr. Flagg, moreover, finds occasion to reassert some of the basic principles of architecture. In the course of his pleasant little homily he takes a line that would probably commend itself to Mr. Lethaby, who would, we are sure, assent most cordially to Mr. Flagg's declaration that the first and most important principle in the design of buildings is reason and common sense, and he complains—not quite justly, to be sure—that these qualities are never mentioned in text-books on design; nor does he make allowance for the old and crusted truth upon which Descartes was wont to insist, that reason and common sense are the rarest of human attributes. Mr. Flagg holds that valuable economies could be effected by the elimination of cellars, by turning to practical account the wasted space under sloping roofs, and by ruling out superfluities that may be detected in the common methods of constructing partitions and doors, etc.

This article of Mr. Flagg's is certainly not the least useful of a series in which housing or building problems are discussed by some forty experts from as many points of view. Half a dozen of the articles deal with the still topical question (in America) of zoning, on which Mr. Harvey W. Corbett is both enthusiastic and informative.

"Housing Problems in America. Proceedings of the Ninth National Conference on Housing, Philadelphia, 1923." New York: National Housing Association, 105 East 22nd Street.

The English Lakes.

A guide to the English Lakes, by Percy W. Parminter, which has just been issued by the London, Midland and Scottish Railway, appears at a very appropriate time, as May and June are two of the best months in which to tour the district. During these months the varied tints of green on the landscape most certainly enhance the views and bring out to the full the well-wooded valleys. The Lake country is practically encircled by the L.M.S. Railway, and taking into consideration its size—roughly a circle of thirty-five miles diameter—it stands unrivalled for its grandeur and variety in magnificence of scenery. The aim of the guide book is to give all the necessary information in a concise and practical manner, so as to save the time of the reader. Its main object is to point out the leading features, to visualize the chief points of interest, and to lead the tourist to each centre where he will soon find out the thousand-and-one lesser attractions for himself. There are four sections, as follows: (1) Southern—Ambleside, Windermere, Bowness, and Coniston; (2) Northern—Keswick and Borrowdale; (3) Penrith, Shap, and Ullswater; (4) the Furness Coast, Seascale, and the Western Lakes. In addition, there are chapters relating to the mountains, passes, and lakes; natural history; fishing and hunting; geology and agriculture; climbing, walking, and golf; and Wordsworth and the lake poets and authors.

Publications Received

"Electricity for Everybody: A Handbook for Central Station Engineers and all Users of Electricity." By R. Borlase Matthews, A.M.Inst.C.E., M.I.E.E. Third and Revised Edition. Price 7s. 6d. net. The Electrical Press, Ltd., Fisher Street, London, W.C.1.

"The Victoria and Albert Museum Department of Woodwork: The Panelled Rooms III—The Boudoir of Madame de Sérilly." Price 1s. 8½d., including postage. The Victoria and Albert Museum, South Kensington, S.W.7.

"House Heating." By Margaret Fishenden, D.Sc., F.Inst.P. (late Beyer Fellow of the Manchester University). Price 25s. net. H. F. and G. Witherby, 326 High Holborn, London, W.C.1.

"The Empire Municipal Directory and Year Book, 1925-26." Price 11s. post free in United Kingdom. 8 Bream's Buildings, Chancery Lane, London, E.C.4.

Law Reports

Local Authority and an Unsealed Contract

Ellis Partridge & Co., Ltd. v. *U.D.C. of Aberdare.*

King's Bench Division. Before Mr. Justice Mackinnon.

This was an action by Messrs. Ellis Partridge & Co., Ltd., slating and tile merchants and contractors, of Leicester, against the U.D.C. of Aberdare, to recover the sum of £1,134 for slating work done in connection with a housing scheme which the defendants were carrying out in 1920 and subsequent years. Plaintiffs sought also to recover the sum of £560, the value of certain slates and other materials which were not used by the plaintiffs, but were lying on the site, and were claimed by plaintiffs as their property.

Mr. Marriott, for the plaintiffs, said, with regard to the materials represented by the £560, the plaintiffs had demanded that these should be given up to them, but the defendants had declined to give them up, and prevented the plaintiffs' servants from removing them. The defendants, counsel said, with regard to the claim for the £1,134, pleaded the provisions of section 174 of the Public Health Act, 1875, under which they were not allowed to contract for an amount over £50 except under their seal. That plea had been upheld by the Court of Appeal in another case, and plaintiffs realized that they could not continue their claim for the £1,134, and they therefore abandoned it. The other part of the plaintiffs' claim was for £560 slates, etc., detained by the defendants, which were not used.

His lordship: It is curious that people who do business with these bodies are not aware of the provisions of this section.

Mr. Marriott: It is most extraordinary, but it is quite usual that they do not in the least know.

Continuing, counsel said the defendants had no right to detain these slates. They were the property of the plaintiffs. Plaintiffs believed the slates had since been used by the defendants in connection with housing schemes, and plaintiffs had not had a penny piece.

Defendants said the work was being carried out for them by a contractor, and that there was a clause in the contract which said all materials brought upon the site were their property. Plaintiffs replied that the materials were supplied to the defendants, that they had no knowledge of the clause in question, and that it did not affect their claim.

Mr. Kirkhouse-Jenkins, for the defendants, said the building scheme was suspended, and his contention was that the plaintiffs, by their conduct in allowing the goods to be delivered to the site, so acted as to lead the defendants to believe that they had sold or disposed of their property in the slates to the contractors with whom the defendants had a contract for the erection of the houses.

His lordship held that the various defences set up failed, and he gave judgment for the plaintiffs for the £560 claimed, with costs.

Road Dedication

Paignton (Devon) U.D.C. v. *Pope.*

King's Bench Division. Before the Lord Chief Justice and Justices Avory and Shearman.

This was an appeal by the Council against a decision of the local justices in regard to the making-up of York Road.

Mr. Costello, for the Council, said they had adopted the Private Streets Works Act, 1892, and under that Act they made up York Road, charging the frontagers with a proportion of the cost. Some thirty-eight out of fifty-five frontagers objected to the apportionment as well as their liability to pay, and the matter came before the local justices. The thirty-eight frontagers took the following points: (1) That the road had already been taken over by the Council, and was repairable by the inhabitants at large; (2) that the cost was exorbitant; and (3) that there had been no proper apportionment of that cost. The first point only would claim the attention of the Court, for the justices came to a curious decision, namely, that the road was in certain circumstances a highway, repairable by the inhabitants at large. They came to that decision on an old legal decision of last century, which had, as a matter of fact, been upset by a line of subsequent authorities. The Council said this was a private road, but even if it were a highway it was not repairable by the inhabitants at large, because since 1838 it was not possible for the highway to be dedicated by any formality to make it so repairable. The frontagers argued that, as the Council had used the road as a means of reaching their refuse destructor, had named the road without consulting the householders, and had swept and lighted it, they had taken it over, and the justices agreed with that contention. Counsel said the legal authorities did not support that view of antecedent dedication to the public. The most remarkable part of the case, said counsel, was that the owners had done nothing on their part to assist the Council, not even offering the road for dedication to the public.

Mr. Geen said the justices had found that the street had been dedicated, and he suggested that the deduction came from the user of the road by the Council. It had been metalled and repaired for years, and the Council and inhabitants had had uninterrupted use.

The appeal was allowed, with costs.

The Lord Chief Justice said there was nothing in the acts of the Council, individually or collectively, of such an unambiguous character as to prove a dedication of the road to the public and an adoption of the road by the Council so as to make it repairable by the public at large without an initial contribution by the frontagers. It was impossible to say that the formalities demanded by the Statute for the dedication of the road had been observed in this case; in fact, circumstances were inconsistent with the proper dedication.

The other members of the Court agreed.

By-Laws and Air Space—Important Judgment

Attorney-General v. *Denby.*

Chancery Division. Before Mr. Justice Astbury.

The case of the Attorney-General, at the relation of Edward A. Ffooks, owner and occupier of the house the "Sundial," Lyme Regis, and Mrs. Jessie Ellen Carlton, the occupier of the house "Library Cottage," on the east side of the "Sundial," against F. Denby, of Fair View, Sefton, East Croydon, came before the Court.

The action arose out of the erection on the Promenade, Lyme Regis, by the defendant through contractors of a building intended as an hotel on land adjoining the west side of the "Sundial," and plaintiffs said the building by projecting 9 ft. beyond the front main wall of the "Sundial" contravenes the Public Health Buildings in Streets Acts, and one of the by-laws as to air space of buildings in the borough, and they sought an injunction to restrain further erection and an order for the removal of the existing building.

Mr. Luxmoore, K.C., on behalf of the plaintiffs, said the defence to the action was that the consent of the local council had been obtained to the erection of the building after the erection, and that that was a good consent, that there was no contravention of the by-laws, and if there was the particular by-law was unreasonable and uncertain, and therefore void. As to the alleged consent of the Council, Mr. Luxmoore said no real consent had been obtained, and they did not know in what circumstances any consent had been given, or what the plans were before the Council when they gave consent. The real point, however, was that the consent had to be given before the building was begun.

Mr. Ffooks believed that his light and view would be interfered with by the defendant's building, and he suggested that the defendant should cut back his building; but this suggestion was not accepted, and he relied on the notification by the Council.

His lordship: Suppose there is a by-law which affects only some little back area belonging to a house, and cannot possibly cramp anybody in the town, does the Attorney-General give his fiat in a case of that kind?

Mr. Luxmoore said he would have thought so without any question. But this was not some little breach of a by-law which would affect no one. If the by-law said there must be a certain air-space at the back of every house, the by-law could not be waived for some people and not for others.

His lordship: I was wondering whether you had any case

where in a small matter of area space behind a house the Attorney-General had interfered.

Mr. Luxmoore said it would affect every one in a place if one could break a by-law and another could not. His contention was that there must be an air-space for the whole length of the back of these premises for 20 ft. The extent at the widest place was only 13 ft., and in some places much less.

Council said the by-laws were allowed by the Ministry of Health in May, 1923, having been adopted by the Corporation in March, 1923, so there could be no question about the regularity of the by-laws. One of the chief points of the by-law in question was the ventilation of buildings. Under the by-law they had to have in this case an open space at the rear which had to extend throughout the entire width of the building, and to have a distance across such open space, from the line of the rearmost wall to the boundary of any land or premises immediately in the rear, of 23 ft.

His lordship asked to whom the cliff at the back belonged.

Mr. Luxmoore said it belonged to the local authority.

His lordship : They might give leave to chip off a bit.

Mr. Luxmoore said that would be an expensive matter. He did not know what the price of the land would be. It would mean big excavations, and how far such excavations would be dangerous he did not know. He was told that there had been landslips at the cliff. The air-space at the back of this building, measured in accordance with the by-law, was at the most 13 ft. 5 in.

Mr. Luxmoore: Your lordship knows the dangers that have arisen in those bungalow towns where there are no by-laws, and the trouble that has arisen from that. It may be that people who do not consider health and do not build in accordance with the best requirements will never come within by-laws at all, because they will go where there are no by-laws. But by-laws are necessary, not for those who want to build nice healthy houses, but for those who are ready and anxious to build something which is cheap and does not accord with the necessary provisions for health.

Counsel concluded by saying he was right both on the Act and on the by-laws, and he believed it would be a waste of time to call any evidence, as the facts were admitted, and both his points were points of law.

Mr. Ward Coldridge, K.C., on behalf of the defendant, said the fallacy which underlay Mr. Luxmoore's argument was that until there had been a failure to remove a building after notice given there was no offence.

His lordship : I do not think you need develop that, because I am prepared to hold that there was a written consent to the building within the meaning of the Act.

Mr. Coldridge then dealt with the by-law in question.

Counsel contended that there was such a degree of uncertainty about the by-law as to render it void.

Mr. Frederick Hugh McDonnell, architect and surveyor, said he was present when the building committee of the council considered his plans and the by-law with regard to air-space. The plans were approved, and on the strength of their approval the building contract was entered into. He considered that the air-space provided for was quite adequate.

Mr. William Braxton Sinclair, architect, London, said he had been on the architects' staff of the London County Council, and had a wide experience as district architect of the Ministry of Agriculture. He was familiar with the by-law No. 7 with regard to its application to a site like this, where the ground was not level. It was generally accepted that the by-law could never function in hilly districts. In every such case the local surveyor had to deal with the case on its merits, as it was impossible to settle what was the level of the hilly ground. In his opinion there was in this case adequate provision for the circulation of air and ventilation. The by-law was such that it was impossible to say whether this building complied with it or not.

Plaintiffs called rebutting expert evidence.

Mr. Sidney Alexander Jackson, architect and surveyor, Dorchester, said he could not say he had had much experience of the by-law as to air-space being applied to buildings in hilly districts.

In reply to counsel, Mr. Jackson gave what he considered the ground line. As to the opinion expressed by the other side that there was a basement, he said there was no basement. He would call it the ground floor, as it was on the level from the promenade to the back area.

His lordship, giving judgment, said defendant employed as his architect a gentleman who happened to be the borough surveyor, and he prepared plans for the defendant's proposed building, and submitted them to the building committee of the corporation. The plans did not show that the front wall of the building extended beyond the front wall of the first relator's house. But in all other respects they were complete plans. The defendant's architect attended the meeting of the building committee, and explained the plans, and among the things discussed was the air-space at the back of the hotel. The mayor of the borough presided over the meeting, and the committee of the Council stated, and his lordship accepted, the evidence that the committee carefully considered the plans, including the adequacy of the air-space, and that each member of the committee knew the site of the proposed building perfectly well. The plans were passed by the committee on December 10, 1923. Then the first relator came on the scene. No written consent of the defendants was, in fact, given to the erection of this hotel prior to the building operations commencing. But on May 12, 1924, when the building was approaching completion, when the whole of Mr. Ffook's complaints had been made known to and considered by the corporation, the corporation gave its consent in writing to the erection of the hotel beyond the front main wall of Mr. Ffook's house. It was not till June 2, 1924, that the writ in this action was issued. There were two totally different matters to be considered : first, whether there had been a breach of section 3 of the Building and Streets Act, 1888; and, secondly, whether the building was put up contrary to the provisions of the by-laws as to ventilation and air-space at the back; and, incidentally, whether if that were the fact, the by-law in question was reasonable, certain, and valid. Was the defendant's building a house which was unlawfully erected within the meaning of the section of the act? It seemed to him that the real object of the section was to give to the urban authority the right to control, where they had power to do so, the line of streets under their jurisdiction, and to prevent the erection contrary to their will and without their written consent of a building which contravened the provisions of the section. In this case the building committee and the corporation, without having their attention drawn to the difference in the front main wall of the proposed building and that on the side of it, knowing nothing of what was proposed to be done, came to the conclusion that the house was one of the plans of which they ought to approve, and they did approve, and the defendant proceeded with his erection on the faith of having obtained the consent, as he thought, of the local authority. That committee, in fact, had no power to give a written consent within the meaning of the section, but the corporation, as soon as its attention was drawn to the dispute, did give its written consent to the house remaining erected and being completed, and in his opinion that was amply sufficient to prevent there having been in the circumstances any infraction of the section as unlawful building thereunder. In his opinion it would be wholly wrong to grant a mandatory order to pull down this house, because the local authority did ratify and give its written consent to that which had been and was proposed to be done.

On the question whether the by-law in question had been broken, his lordship said this was a case of an hotel built on the side of a hill. It had behind it a large open park, and it had, at the west of it, public gardens. In front of it was the sea, and it was not contested that as far as air and ventilation were concerned it probably had quite as much as was good for it. The defendant in making his building scooped out apparently from the hill at the back sufficient space to make lighting areas, of which there were two. The plaintiffs sought under section 4 of the by-law to measure the height of this hotel from the level of the ground where the defendant had excavated. As a matter of fact that was not the level of the ground at all. The level of the ground, apart from the lighting areas, was shown very fairly on plans put in, and it was really quite impossible to say what, having regard to the particular character of the lighting areas, was, in fact, the level of the ground within the meaning of the by-law. This hotel had the sea in front of it, a large public park at the back, and a public garden at the side, and it was almost ridiculous to suggest that it had not an ample and more than ample circulation of air and ventilation. Many of the provisions of the by-law were wholly inapplicable to the circumstances of the case. The object for which they were passed to secure ventilation and circulation of air had in this way been trespassed against except in words, and sub-section 4 of the by-law was so uncertain that he was unable to put any construction upon it as applying to this case. The plaintiffs' case failed on both points, and the action must be dismissed with costs, to be paid by the relators.

The Architecture Club Dinner

"Waterloo Bridge"

WATERLOO BRIDGE and its Designer, John Rennie, was a toast at the Architecture Club dinner, at the Hotel Cecil, on Friday night last; and, as one expected, the discussion produced a pretty fierce bombardment of the L.C.C.'s already heavily-shelled position. It would have been interesting to hear the L.C.C. retaliate, but as no member of that august body was present (or if he was he prudently kept silence), that pleasure was denied us.

The Duke of Atholl led the attack with the remark that even if the L.C.C. "built a bridge three times as wide and, of course, six times less beautiful," they would never, by that means, solve the traffic problem.

The traffic problem, the Duke went on to say, is one which must be tackled in a large way; a comprehensive scheme must be conceived and gradually carried out, so that eventually the handling of London traffic may be entirely reorganized.

This is mere common sense. For to fix at random on a particular spot, and, without any plan, to pull down a bridge and rebuild it merely to relieve congestion at that point, is simply to arrange for greater congestion in the area round, which, in this case, means the Strand, a street that is already so congested that it ought not to be made to carry a single extra vehicle. And to choose as the particular spot for destruction what is (after St. Paul's) London's finest monument—when London itself is composed of a mass of hideous streets, the majority of which form a far more serious traffic obstruction than Waterloo Bridge, is simply diabolical. Indeed, if, as Sir Frank Dicksee suggested, the L.C.C. really wish to build a wide new bridge because they want to put across it their trams, which are run at a heavy loss, it is super-diabolical.

On this point, let us hope, Mr. Norman and his colleagues may be defeated; but they have another position to fall back upon. "Ah!" they will say, "you are right. You have convinced us. But what are we to do? Our expert engineers tell us that Waterloo Bridge cannot be underpinned!"

According to Sir Frank Dicksee again, the answer to that is: If English engineers cannot underpin Waterloo Bridge, call in the French and the Americans. They will do it without winking an eyelash. But as a matter of fact it is not necessary to call in either the French or the Americans. For, if Mr. Dalrymple-Hay is to be believed, the underpinning of Waterloo Bridge is not merely easy—it is "child's play." In the speech of the evening he stated most emphatically that the question *whether* Waterloo Bridge can be saved simply does not exist. Mr. Dalrymple-Hay is the engineer to the Underground Railway; he is now working under the Thames on an underground scheme; and he has himself studied Waterloo Bridge and made a report on it for the Society for the Preservation of Ancient Buildings—a report, by the way, which was sent to the L.C.C., but was ignored. So he ought to know something about it.

It is fairly obvious, therefore, that on these two points the L.C.C. hasn't a leg to stand on. But is the bridge worth taking all this trouble to save? Professor Reilly, in supporting the Duke of Atholl's toast, answered this question perhaps as well as it could be answered in a delightful speech in which he considered the bridge as a work of art, as a piece of civic architecture, as a national landmark, and, finally, as a monument.

This last aspect has surely been overlooked by many people. For his part, Professor Reilly thought it would be ill for us, who have built our own war memorials, to destroy those of our fathers.

Mr. J. C. Squire, who was in the Chair, mentioned that the Club had joined with other societies in sending deputations to the London County Council with regard to Waterloo Bridge, and they were still busily engaged in preparing memoranda with which to bombard that body. If the battle against the committee's report were waged properly, it would be won for art and civilization, and the committee would be thrown back upon the general traffic problem of London.

The Duke of Atholl, who proposed the toast of "Waterloo Bridge and its Designer, John Rennie," said that, to his mind, the modern traffic problem was not to be settled by pulling down Waterloo Bridge. The London traffic problem could not be treated in patches, and those who had to deal with it would have to take a long view. It was not to be a cheap job, and it would only be more expensive if it were treated in a haphazard and opportunist way. The solution could be brought about only by the joint work of architects and engineers, and the two sides would have to come to an agreement before they could get much further.

Sir Frank Dicksee, P.R.A., who supported the toast, said one very sinister aspect of the question was the dreadful notion the County Council had of putting tramways all over the City. He believed they were bent upon putting a tramway across Waterloo Bridge, and if the bridge could not stand the tramways it had to give way to the tramways. The expert evidence was so difficult to gauge that he had not the least idea whether English engineers felt competent to preserve the bridge. If they were not, then he feared they must turn to the engineers of another country. It would be worth spending a very considerable sum of money—more even than it would cost to build a new bridge—to preserve this old one.

Professor Reilly, who also supported the toast, dealt first with the bridge from the architect's point of view, then with John Rennie himself, his "suave and beautiful" work, and, finally, with the bridge as a memorial to Waterloo. Are we, he asked, who have in our time built little memorials all over England, to see destroyed this great monument to the Napoleonic Wars built by merchant adventurers, a gift of private men to the town?

Two engineers responded to the toast—Mr. E. Cruttwell and Mr. Harley Dalrymple-Hay, the latter of whom went into a technical analysis of the bridge and made the observations recorded above.

Lord Lee of Fareham, who proposed the toast of "Architecture and the Press," said he was in deep sympathy with all the views expressed with regard to the inexcusable vandalism of destroying Waterloo Bridge.

Mr. John Walter, in responding, said that architecture seemed to him to be in a fair way to becoming of greater national importance than any of the other arts, and the Press would ask nothing better than to be associated more closely with an aim and ideal which was destined to affect the health, wealth, and happiness of each one of them and their descendants.

Among those present were: The Duchess of Atholl, M.P., Sir Robert and Lady Elliott-Cooper, Sir John Simpson, Sir Banister Fletcher, Professor Adshead, Mrs. John Walter, Mr. Oswald Barron, Mr. Darcy Braddell, Mr. H. C. Bradshaw, Mr. W. H. Brierley, Lieutenant-Colonel Cart-de-Lafontaine, Mr. E. Beresford Chancellor, Mr. J. A. Davis, Mr. Rudolf Dircks, Mr. J. H. Elder-Duncan (secretary), Mr. Howard Robertson, Mr. and Mrs. Oswald P. Milne, Mr. and Mrs. Edward Maufe, Mr. and Mrs. Charles Marriott, Mr. and Mrs. Ralph Knott, and Mr. and Mrs. Stanley Hamp.

The R.I.B.A. Annual Dinner

Over 200 members and guests attended the annual dinner of the R.I.B.A. at the Trocadero Restaurant on May 12. Mr. J. Alfred Gotch, the President, occupied the chair.

Lord Peel, in proposing "The R.I.B.A. and Allied Societies," said that while he could not say that he had been brought up upon the self-same hill as the President, he had come from the self-same march in the Eastern Midlands. He congratulated him on achieving the honour of being the first of the Presidents of the Royal Institute who did not come from London. He thought there were no architects in the Cabinet—which was a very deplorable omission. He then described the architecture of many of the Government buildings, and said he did not know whether a building should show the particular class of business that was carried on within it. He asked: How could one deduce from the appearance of the Admiralty what work is being done inside it? The Treasury he described as a rabbit warren or labyrinth. After paying a tribute to Sir Edwin Lutyens, who had just been presented with the gold medal of the American Institute, he remarked that the public were getting more sensitive to the necessity of beauty in architecture and building. They found people troubled about Regent Street; and the fact that a quarter of a million had been subscribed by the public for St. Paul's was no mean expression of their opinion. Even "the Old Lady of Threadneedle Street" was getting tired of the old bungalow in which she lived and, excited, no doubt, by the return of the gold standard, she was rising three or four stories. It was only within the last few years that they had begun to study the problem of making mills and factories sensible and even beautiful. In this respect, the country had been behind the times, but they looked to architects to help them to make industry not hideous and ugly, but dignified, sensitive, and even beautiful. Architecture was, after all, the great democratic art.

The President, in responding, referred to the recent amalgamation of the Royal Institute and the Society of Architects, and said the importance of that event to the public was that they were all working through the same agency for the same ends—the well-being of architects and the advancement of architecture. It was greatly to the public advantage that there should be a body of wide authority to guide them when they needed guidance and to point the way firmly and kindly when they did not. Of all arts, architecture came home most insistently and most intimately into the daily lives of men and women, and successful results in architecture could only be achieved by those who were trained to produce them. Only within the last ten days an important step had been taken in forwarding the cause of architectural education, inasmuch as the allied societies had undertaken to find the means of founding several maintenance scholarships. In conclusion, he outlined some of the ways in which the Royal Institute could serve the public.

Mr. Percy Thomas, replying on behalf of the allied societies, said that as much as the amalgamation of the R.I.B.A. and the Society of Architects had been welcomed by the Institute, nowhere had it been more appreciated than by those local societies in whose districts the Society of Architects had aided in carrying out the aims of the Royal Institute. He paid a tribute to the Board of Education for their efforts to improve the design of school buildings.

Lord Sumner, in proposing "The Arts," remarked that the arts, however they might understand or misunderstand them, were the salt of life, without which they would rather die and without which nations would die.

Sir Frank Dicksee, P.R.A., in reply, agreed that the masses of the people were taking more interest in architecture, and he thought that as time went on they would take an even greater interest.

Sir Lionel Earle, who also replied, said that the high standard of American architecture was due, primarily, to the fact that from the very outset architects were trained from a constructional point of view and were made to give special attention to questions of material. He regretted that this method was not followed in this country.

Major Harry Barnes, proposing "The Guests," said that if in the future it were announced that the Office of Works would confine itself to the restoration and maintenance of old buildings, and leave the designing of new buildings to outside architects, the announcement would be received with thunderous applause.

Lord Riddell and Mr. R. C. Norman responded.

Mr. R. C. Norman said that when he first approached the subject of Waterloo Bridge he did so from the most biased point of view, together with a desire to do all he could to secure its preservation. Having consulted what they believed to be the best technical advisers they could find, they decided to accept their advice and abide by it. Having decided, rightly or wrongly, they had two courses open. Either that the bridge came down and they built a new one, as like it in form as possible, or that they used the best architectural talent and endeavoured to replace it by a bridge which would not only be more suitable for modern requirements, but would also, they hoped, be a worthy successor to Rennie's masterpiece. They decided for the latter course. They might be wrong, but even so, it was no ignoble choice. It might be shown, although it had not yet been done, that the experts were wrong, and that the bridge could be retained.

The London Society Dinner

The seventeenth annual dinner of the London Society was held at the Hotel Victoria. Mr. Harold Cox presided in the absence of Lord Crawford, the president, who was unable to be present owing to illness.

Mr. Mervyn Macartney, speaking on the preservation of City churches, said there was a Bill before Parliament for uniting various parishes in the City, so that their revenues might be attachable by the Church. He thought that ought to be resisted at all costs. Of about seventy churches twenty-three had disappeared during the last century or so, leaving about fifty churches. Ten or fifteen years ago the Bishop scheduled nineteen of them, and if these had gone there would have been a poor remant left of the splendid collection designed by Wren. The Bill lately brought in left the initiative practically in the hands of the Bishop. He had a board of disposals, and it was impossible to tell what they would do. As the clergy were about two to one, it seemed that most of the churches would go, and their revenues would be distributed among various parts of the kingdom. He did not think they wanted to lose the churches.

Lord Askwith, speaking of the changes in the Savoy, said that he was High Steward of the Manor of the Savoy. He had an ancient mace, and he wrote the records of his courts in a book which began in 1730. That book contained some extraordinary references to the changes which had taken place.

Sir Frank Dicksee, P.R.A., referred to the disappearance of the statue of Eros from Piccadilly Circus. He said he had been asked to try to get the statue restored to the Circus, but he had declined because he thought that was the last place to put a beautiful work of art. In the daytime it was wholly unsuitable for a work of art, while at night time, owing to the illuminated signs, it was about the most vulgar place in Europe. He would like the statue of Eros to go to a place where a fountain could function, as was originally intended. There were places in the parks which the statue would adorn.

Lord Montagu of Beaulieu spoke of the congestion of London streets, and said that unless London could find better means of moving about than existed now, it would not be many years before London locomotion would become atrophied.

Coming Events

Friday, May 22.

Town Planning Institute, 92 Victoria Street, S.W.1.—"Croydon Town Planning Schemes." 6 p.m.

Monday, May 25.

Architectural Association, 34 Bedford Square, W.C.1.—"London's Housing." By Mr. G. Topham Forrest, F.R.I.B.A.

Tuesday, May 26.

British Society of Master Glass Painters.—"Acoustics." By Mr. A. G. Huntley.

Enquiries Answered

Enquiries from readers on points of architectural, constructional, and legal interest, etc., are cordially invited. They will be dealt with by a staff of experts, whose services are specially retained for this purpose. If desired, answers will be sent direct through the post. In no case is any charge made for this service. Whenever diagrams accompany an enquiry, they should be clearly drawn and lettered and inked in.

THE PLANNING OF A MINING SCHOOL.

"S. A." writes: "I have been asked to prepare plans for a technical school, and part of the accommodation asked for is to be given over to a mining department, which is to consist of the following: four classrooms, one science laboratory (800 sup. ft.), one mining, and one electrical engineering laboratory (800 sup. ft. each), while an annexe is to be provided for gas testing. This makes seven rooms with annexe for the mining department. How should these rooms be fitted up and planned? Can you tell me where I can get information on technical schools generally?"

—The Board of Education have not issued any building regulations for technical schools. Our correspondent should visit a well-planned school containing a mining department, and write direct to the Board, whose address is Whitehall, London, S.W.1.

THE WOODWORM IN FURNITURE.

"H. J." writes: "I am anxious to kill the woodworm which appears to be attacking some valuable old oak furniture, and have bought some 'Hope Woodworm Destroyer.' Before using it, I am anxious to find out if it will injure the furniture. Is there a better method? I wish to treat the furniture in the house, if possible."

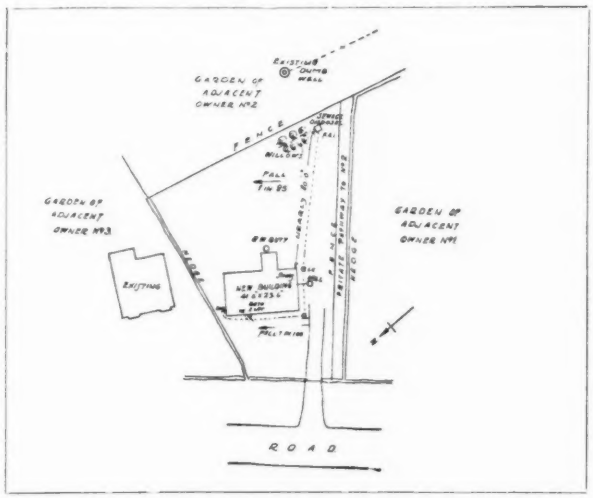
—You will be perfectly safe in using Hope Products Woodworm Destroyer, carrying out their instructions. The polished surfaces always present a difficulty, inasmuch as the polish prevents absorption, and the liquid does not readily flow down the worm-holes, owing to air-lock; for this reason apply well at the back, where the wood is unpolished; and on the face, insert a fine wire as far as it will go down some of the holes and allow drops of the liquid from a brush to run down the wire into the interior. In the case of worm-eaten legs, stand the affected leg in a jar partly filled with the worm-destroying liquid. For this I generally use Solignum, thinned with paraffin. Both Hope's solution and Solignum have the property of hardening the worm wood as they dry out.

Before polishing, fill the holes with melted beeswax, to which has been added a little resin, and a pigment in powder, such as umber, to match the tone of the wood. Pieces of old oak badly riddled with worm, which it is almost impossible to polish, should be given a wash of hot glue size, which, when hard, will give the necessary base upon which to wax-polish.

J. C. R.

COUNTRY SEWAGE DISPOSAL.

"Subscriber" writes: "I am building a bungalow on a site shown on accompanying sketch. The household is to be of four people, and the sanitary arrangements consist of a bath, a lavatory basin, a w.c., and two sinks. The household laundering will be done at home. The site is enclosed, and is small, falling slightly in one direction only. For sewage disposal a 'dumb-well' is not desired, and expense forbids the construction of a proper septic tank with soak-away arrangements. My present idea is to conduct the sewage to a settling tank, 2 ft. 6 in. by 3 ft. by 4 ft. deep, below outlet. After digestion here, the now more or less purified liquid will pass along a short length of field drain on top of a bed of clinker. Through this it will percolate, and then be soaked up by about half a dozen willow trees planted for that purpose. (1) Do you consider such an arrangement at all satisfactory? (2) Would the ground about the clinker bed become sodden in the winter? (3) If you consider this unsatisfactory would you kindly suggest a better scheme incurring little extra expense?"



—You do not say what the soil and subsoil consist of! If it is retentive in character, I fear your plan will not be found to work satisfactorily, because the accumulation of sewage and water will soon render the whole place waterlogged—is there no ditch into which the cleared effluent could be diverted? There is no doubt that a sewage scheme must follow the aggregation of houses on small plots of land like this—there is not room enough upon any of them for the disposal of sewage, and I really think your best plan is to put in a dumb well, with chain pump, till such time as the sewer is built.

F. S. I.

JOINTLESS FLOORING FOR PICTURE HOUSE.

"Architect" writes: "Please give me your opinion of patent jointless flooring for use on a picture-house floor, particularly with regard to its wearing properties and the fixing of the seats."

—There are two absolutely distinct types of jointless flooring in general use. One has a base of Portland cement for use on new or wet solid concrete, and the other has a sawdust base and may be applied either over dry rough concrete or over worn floorboards in situations where a linoleum-like finish would be suitable.

Composition floorings made up of magnesium cement and filling materials, such as sawdust, wood-flour, cork-dust, and colouring matter, have a tendency to cause corrosion in ironwork, and the metal should be protected with an isolating material where it would otherwise come in contact with them. The finished floor does not affect iron placed upon it, and the use of hard-wood fixing plugs of adequate size would obviate the corrosion difficulty in connection with the fastenings of seats in the picture house.

With the granolithic type of flooring the danger of corrosion lies in the large quantities of water that have to be used during construction, for the topping material is applied to the concrete while it is either green or wetted, and must be sprinkled again when it is set. For hard wear, such as a picture-house floor is likely to receive, a jointless floor of granolithic topped with Ironite flooring might be laid in accordance with the directions issued by the manufacturers.

Fixing for the seats should be prepared in advance by means of plugs or screw-threaded tubes before the Ironite topping or the granolithic is laid, for the material becomes intensely hard when set. A concrete floor that is to receive a finish of rubber sheets or tiles, linoleum, or wood-block flooring, is sometimes made waterproof by brushing a thick coating of Ironite slurry over its surface.

The existing floor must be cleaned and wetted immediately before the application of the slurry. The material is mixed dry in the proportion of 1 lb. of Ironite to 3 lb. of Portland cement, this amount serving for one superficial yard. The dry powder is then shaken in small quantities into a pail of water and stirred to form a thick slush. The surface prepared in this way is not intended as a finished floor, and must be protected from wear or injury until the finishing material is applied.

Jointless floorings composed of sawdust, magnesite, and colouring matter are not adapted to receive such heavy wear as granolithic floorings, and unless mixed and laid with great skill are liable to expand and burst free from the backing or to dust up in use. They can be made in several attractive colours, and, at the worst, form an excellent under-coating for linoleum or rubber where silence is a consideration.

With all forms of jointless flooring it is necessary to allow ample time for the material to set before any traffic is permitted across the surfaces. The personal element counts for a great deal in the success or otherwise of jointless composition flooring, and before selecting a particular type for the picture house it would be advisable to inspect a floor that has withstood similar conditions, and then employ the firm that laid it.

W. H.

GLAZING IN STEEL CASEMENTS.

"Associate" writes: "I have recently had trouble when glazing in steel casements. Can one of your readers give me the proportions for a mastic putty which would be suitable? Ordinary putty does not set 'for some considerable time.'"

—There seems a trace of confusion in the question. Mastic putty is made by adding tallow to ordinary putty, which prevents its setting. A hard-setting putty suitable for glazing in iron casements is made from whiting ground in linseed oil, with the addition of one-third bulk of red and white lead in equal proportions, or litharge (sugar of lead).

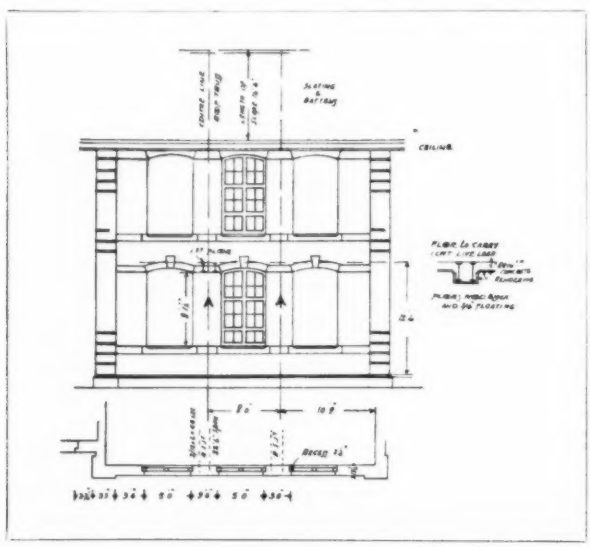
E.

SAFE LOAD ON BRICK PIERS.

"W. J." writes: "Please give me your opinion on the stability of the piers marked 'A' on the accompanying drawing."

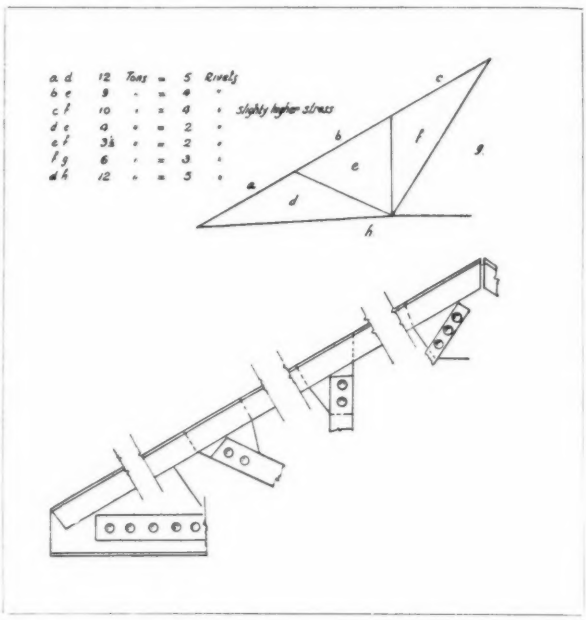
—The first floor is to carry a live load of 1 cwt. per foot super over pairs of rolled steel joists 12 in. by 6 in. by 44 lb., 8 ft. centre to centre, at 22 ft. 6 in. span, with a 5 in. reinforced concrete slab. The dead load will be 115 cwt. on each pair of joists, and the live load 180 cwt., together equal 295 cwt., say 15 tons, or 7½ tons at each end. The brickwork of, and carried by each pier, will weigh 108 cwt., the roof and wind, say 34 cwt., making a total of 142 cwt., say 7 tons. This gives a total of 14½ tons on each pier A. The piers are 3 ft. by 1⅛ ft., and 8 ft. high; they are assumed to be in lime mortar. Taking the safe load at 3 tons per square foot, they would only carry 10⅛ tons, so that they are not safe, and it would be necessary to make them at least 18 in. thick, or to add pilasters 2 ft. 3 in. by 9 in. bonded in under the girders.

HENRY ADAMS.



JOINTS IN FRAMED STRUCTURE.

"R. H." writes: "Please give me your opinion on the jointing of members in framed structures. Where two members of the joint are continuous and in the same straight line. This condition often occurs in the principal rafters of moderate span roof trusses, and in the top and bottom members of lattice girders. If the member is in two pieces at the gusset plate a sufficient number of rivets will have to be provided at each end to take the stress in it. If the member is continuous fewer rivets appear to be necessary. How do you calculate the number of rivets necessary to join the shear plate to the continuous member? If, say, six rivets are necessary to attach the other members of the joint to the plate, it would seem as though the same number would be necessary to attach the plate to the continuous member."



—If the principal rafter of a steel roof truss is in one continuous length there will of course be no joint and no rivets, except to attach the other members. In these cases the rivets in the principal rafter will be equal in number and size to those required to attach each of the other members whether by means of a gusset plate or otherwise. If there are joints in the principal rafter, which is not usual for small trusses, the rivets and cover plates would have to suit the maximum stress in the adjacent lengths.

HENRY ADAMS.

RADIATORS.

"Interested" writes: "Can a lessee, upon the completion of his lease, remove the radiators from a central heating installation which he has installed during his tenancy? If he is allowed to remove the radiators, must he also remove all pipe connections exposed above the floors, or may he leave the pipes in position as installed?"

—So far as I am aware, no legal decision has been given under which "Radiators" for heating purposes have been adjudged to be "tenants' fixtures," but I am of opinion that they are quite as much "tenants' fixtures" as are ordinary firegrates; as a rule radiators can easily be removed if a nut or two be released.

There then remains the question of the removal of their supply pipes, which is more difficult. I am of opinion (no legal decision being known to me) that these may reasonably be left in position for the use of the next occupier of the premises, and that they need not be removed by the outgoer.

In removing the radiators it should be borne in mind that the scars on the wallpaper may necessitate repapering, which may cost more than the value of the radiators, and it may be good business to abandon them on this account only.

I advise that the whole heating installation be offered to the landlord before the termination of the tenancy, on payment by him of the value of the radiators only.

F. S. I.

Societies and Institutions

R.I.B.A. Council Meeting.

Following are notes from the Minutes of the last meeting of the Council of the R.I.B.A. :

The Bartlett School of Architecture, University of London.—The report of the R.I.B.A. Visiting Board on the Bartlett School of Architecture was approved and ordered to be communicated to those concerned.

Durham Castle.—A grant of £100 was made in aid of the fund for the preservation of Durham Castle.

Registration.—On the recommendation of the Registration Committee it was decided to circularize the members of the R.I.B.A. and urge them to describe themselves as "Chartered Architects."

Streatham Common Extension.—Professor S. D. Adshead was appointed to represent the R.I.B.A., and to act as hon. vice-president, in connection with the Norwood Grove Purchase Scheme.

Hon. Corresponding Membership.—Dr. A. Kemal Ad-Din, chief architect to the Moslem Supreme Council in Palestine, was nominated for election as an honorary corresponding member.

Reinstatements.—The following reinstatements were announced : As Licentiate, H. Sesom-Hiley; as Associate, A. C. Denny.

The Society of Architects.

An extraordinary general meeting of Fellows and members of the Society of Architects will be held at 28 Bedford Square, London, W.C.1, on Thursday, May 28, at 4 p.m., when resolutions for the voluntary winding up of the Society on amalgamation with the R.I.B.A. will be submitted. Should these resolutions be passed, whether with or without modification, by the requisite majority, they will be submitted for confirmation as special resolutions at a further extraordinary general meeting of the Society to be held on Thursday, June 18, at 4 p.m.

The Royal Sanitary Institute.

His Royal Highness the Duke of York, K.G., K.T., G.C.V.O., has graciously consented to accept the honorary presidentship of the thirty-sixth congress of the Royal Sanitary Institute, to be held at Edinburgh from July 20 to July 25. The Right Hon. Sir John Gilmour, Bart., D.S.O., M.P., Secretary for Scotland, will preside, and deliver the inaugural address. A health exhibition is held in connection with the congress.

The Architects' and Surveyors' Approved Society.

The committee of management, in their report for 1924, just issued, state that there is now a marked tendency for the membership of the Society to increase, but they realize that there must be a number of new entrants into the architectural and surveying professions, who perhaps do not realize the advantage of joining a society existing solely for their benefit. It is the wish of the committee that the present membership of the Society should be at least doubled, and this result would be achieved if every present member took it upon himself to obtain at least one member for the Society. The committee therefore rely upon the active co-operation of all present members in this important matter. The Society's invested funds which are only available for benefits for members, now amount to £10,389 7s. 8d. Details are given of the amounts paid in benefits during the year. The Society, owing to its favourable position, is able to provide special benefits—dental, optical, surgical, and convalescent—for its members. Mr. F. R. Yerbury is chairman of the committee of Management, and Mr. Herbert M. Adamson is secretary to the Society. The offices are at 26 Buckingham Gate, London, S.W.1.

York and East Yorkshire Architectural Society.

The annual meeting of the York and East Yorkshire Architectural Society was held at York. Amongst those present were Messrs. Stephen Wilkinson, F. Dyer, J. M. Dossor (Hull), W. S. Walker (Hull), A. B. Burleigh, E. A. Pollard, T. Snowden (Hull), W. O. Noble, J. P. Wilde, R. W. Phillips, A. Newton Thorpe, T. E. Cliffe, R. Jackson, J. E. Reid, and C. Leckenby. The first prize given by the Society for measured drawings was awarded to Mr. A. Newton Thorpe. The first prize for wrought-iron gates, given by Mr. Alan E. Munby, was also awarded to Mr. A. Newton Thorpe. The second prize for wrought-iron gates was awarded to Mr. W. O. Noble, and the third prize was awarded to Mr. R. W. Phillips. Mr. J. M. Dossor, of Hull, was elected president; Messrs. Alan E. Munby (London), and W. S. Walker (Hull), were elected vice-presidents; Mr. R. Jackson was elected hon. sec.; Mr. E. A. Pollard was elected hon. treasurer; and Messrs. Highmoor and A. Cowman were elected hon. auditors. The council were elected as follows : Messrs. Geo. Benson, A. E. Burleigh, C. H. Channon (Malton), Stephen Wilkinson, C. D. Harbron (Hull), R. Jackson, F. J. Horth (Hull), S. R. Kirby, L. Kitchen (Hull), C. Leckenby, H. Monkman, Alan E. Munby, S. Needham, F. T. Penty, A. Pollard (Scarborough), E. A. Pollard, J. E. Reid, T. Snowden, J. Stuart Syme, W. S. Walker (Hull), and T. W. Whipp (Scarborough).

The Ancient Monuments Society.

The Society formed last year for the study and conservation of ancient monuments and craftsmanship in the north-western counties of England and in North Wales, which is now known as the Ancient Monuments Society, recently held a meeting in North Wales. The meeting synchronized with the latter part of that of the Classical Association at Bangor, in some of whose functions and visits the Society took part. In these circumstances some of the members of the Society attended a lecture at Bangor by Professor Spencer Wilkinson on "Hannibal's Route over the Alps," while others took part in the visit of the Classical Association to Segontium, and attended a lecture by Dr. R. E. Mortimer Wheeler. Among the other places and buildings visited by the Society, who made Llandudno and Conway their principal headquarters, were the ancient monuments and historic buildings in the Conway Valley and the Derbyshire Moorlands, under the leadership of Messrs. H. Harold Hughes, F.S.A., A.R.I.B.A., W. Bezant Lowe, M.A., F.C.S., and Willoughby Gardner, F.S.A., and to Beaumaris Castle and the neighbouring church. During the meeting Professor J. E. Lloyd, M.A., D.LL.T., F.S.A., the Historian of Wales, gave an address on "Our Heritage and the Dangers which beset it."

The Royal Technical College, Glasgow.

The students and staff of the architecture and building day and evening classes of the Royal Technical College, Glasgow, have recently paid Saturday afternoon visits to three buildings in the district in course of construction.

The first visit was to the new additions to the Victoria Infirmary, which were designed and carried on till recently by Mr. H. E. Clifford, architect, and now, owing to his retirement from professional practice, they are being completed by Messrs. Watson, Salmond and Gray, architects, Glasgow. The additions comprise chiefly wards with operating theatres, and the work was in an excellent state for the study of modern methods of building as regards shuttering for reinforced concrete floors, columns, and stairs, also stone building with brick or rubble backing. The electric crane with its staging, and the general run of gangways as required to be constructed in accordance with local by-laws, were features definitely referred to. Mr. Charles Reid, a former student, who is the architects' assistant on the job, and Mr. T. S. Hunter, the clerk of works, met and conducted the party.

The second visit was to the new arts buildings now in course of erection at the university from the designs of Messrs. Burnet, Son and Dick, architects, Glasgow. While the whole work was most interesting, yet the stone-vaulting portions, being in a perfect condition for examination, proved to be of the greatest value. Vaulting was here seen in all stages of construction, with the necessary centreing in position. The masons' shed contained work in all stages of progress, so that the processes of stone-cutting could be observed. Mr. Martin, clerk of works, conducted the visit, and explained the construction of the stone vaulting.

The third visit was to the new chambers of the Bank of Scotland, St. Vincent Street, Glasgow, the architects being Messrs. Andrew Balfour and Stewart, Glasgow. Here, Mr. Podmure, clerk of works, met and conducted the party. The base-courses of this building are of Cornish granite, finished with a honed surface, while the remainder of the outer walls is of cube-stone ashlar from Blackster quarry.

Professor Charles Gourlay made a few remarks at the close of each visit, and conveyed the hearty thanks of the students and staff to the architects, the clerks of works, and all who had in any way assisted to make the visits so valuable and instructive.

The Week's News

Hostel for Homeless Girls at Southend.

A homeless girls' hostel is to be built at Southend.

The Proposed Infirmary for Harrogate.

The Harrogate Town Council have made a gift of £6,000 for the purchase of a site in Knaresboro' Road for a new infirmary.

Sir Hugh Thomas's Estate.

Sir Hugh J. P. Thomas, of Milford Haven, architect, who four years ago bought the town of Milford Haven, left £116,058.

New Baths for Woolwich.

Turkish and Russian vapour baths are to be built at Plumstead by the Woolwich Borough Council at a cost of £8,000.

Cumberland Road Schemes.

The Cumberland County Council propose to spend £40,000 on road improvements during the ensuing year.

Housing at Bolsover.

The Bolsover Urban District Council are applying for sanction to a loan of £20,500 to defray the cost of erecting houses.

Tiverton Rural Housing.

The Tiverton Rural District Council have decided to erect 100 houses.

New Elementary School for Selby.

At a cost of £15,000 a new elementary school is to be built at Selby by the Ellis Trust.

Housing at Woking.

The Woking Urban District Council are to borrow £12,000 for the erection of houses in Gongers Lane.

Birmingham School Building Schemes.

A number of school building schemes in Birmingham are being considered by the Education Committee.

Fifty Houses for Molesey.

The Molesey Urban District Council have decided to build fifty houses.

More Houses for Leeds.

Sanction to a loan of £229,984 for the erection of working-class houses on the Leeds Corporation estates has been given by the Ministry of Health.

Housing at Loughborough.

The Ministry of Health have sanctioned the borrowing of £18,453 by the Loughborough Town Council for the erection of forty-two houses.

Proposed Flats at Islington.

The Islington Borough Council propose to erect thirty-four flats on part of the garden ground of "Park House," Holly Park, Crouch Hill.

New Houses for Torquay.

The Ministry of Health have agreed to the Torquay Corporation's giving monetary help in respect to one hundred additional privately erected houses.

Proposed New Hospital for London.

It is proposed to spend £30,000 in erecting a new building for the Western Ophthalmic Hospital in Marylebone Road, London.

The Royal Artillery War Memorial.

It is hoped that the Royal Artillery War Memorial at Hyde Park Corner will be ready for unveiling by the King by the end of June.

Housing at Peterborough.

The Peterborough Corporation are applying to the Ministry of Health for sanction to a loan of £27,800 for the erection of houses.

More Houses for Chelmsford.

The Chelmsford Town Council have received the sanction of the Ministry of Health to a loan of £69,000 for the erection of 150 houses on the Boarded Barns estate.

Proposed New Town Hall for Derby.

The Derby Corporation have appointed a committee to inquire into the question of erecting a new town hall. The committee will consider sites, plans, and costs.

Wandsworth's New Housing Schemes.

The Wandsworth Borough Council are borrowing £49,500 for the erection of thirty-two houses at Southfields and forty-eight at Furzedown.

Seven Hundred Houses for Stoke-on-Trent.

The Stoke-on-Trent Housing Committee have received the sanction of the Ministry of Health to proceed with the erection of 700 houses at the Meir and the Abbey (Bucknall).

Building in Aberdeen.

Plans for the erection of and alterations to buildings in Aberdeen, to the cost of £31,300, were passed at the last meeting of the Plans Committee of the Town Council.

Marlborough Memorial Hall.

Marlborough College War Memorial Hall will be opened by the Duke of Connaught on May 23. It has been erected to the designs of Mr. W. G. Newton, F.R.I.B.A., an Old Marlburian.

Housing at Axbridge.

The Axbridge Rural District Council are applying to the Ministry of Health for sanction to a loan of £18,000 for the erection of thirty-six houses.

Rebuilding the Four Courts, Dublin.

The Irish Free State Government are to rebuild the Four Courts, Dublin. The internal structure will be carefully restored; the external effect will be the same as before, and the original design will be accurately reproduced.

Big Midlothian Housing Scheme.

Nine sites have been provisionally selected by the Calder District Committee of the Midlothian County Council for the erection of 204 houses. Plans of the houses are being drawn up for the approval of the Board of Health.

Epsom Race-course Alterations.

In order to carry out extensive alterations and improvements to the Epsom race-course, the Grand Stand Association have agreed to purchase for £57,000 the freehold of Epsom Downs from the trustees of the lord of the manor.

Mr. C. F. Norman's Estate.

Mr. Charles Frederick Norman, F.S.A., of Westdean, Peaks Hill, Purley, architect, who, with his partner, Mr. A. F. A. Trehearne, designed most of the large buildings in Kingsway, W.C., left £30,181.

Proposed New School at Chelmsford.

The Chelmsford Corporation have given instructions for plans to be prepared for the erection of a one-story school on the Boarded Barns Estate, to house 840 scholars, comprising 320 boys, 320 girls, and 200 infants. The cost will be about £21,000.

Harrow Church Subsidence.

Harrow residents are concerned for the safety of the parish church. A committee which has inquired into the matter state that the floor of the church has subsided slightly, and fractures have occurred in the glass of some of the windows, showing that some movement in the fabric is taking place. The cause of the subsidence and movement is being investigated, and Sir Aston Webb, PP.R.I.B.A., has been called in to report.

Big Building Schemes in Cumberland.

The Cumberland Education Committee have approved building schemes in various parts of Cumberland amounting to over £23,000. At Keswick £11,000 is to be spent on school reconstruction, at Beckermet £8,500 in providing a new school, and £2,000 is to be spent on a new school for Wigton. One thousand pounds is sanctioned for a schoolmaster's house at Frizington

Trade and Craft

A New System of Tube Piling.

Romance and history are associated as much with present-day methods of construction and building as with those of the old Roman days. Some of the big new roads that are now being laid may outlast man himself: certainly a thousand years hence their foundations will still remain—a subject, perhaps, for surmise and theory even as is the building of the pyramids to-day.

Such thoughts came to a representative of THE ARCHITECTS' JOURNAL whilst witnessing the driving of some of the piles for the Lea Valley Viaduct, of reinforced concrete, and carrying a roadway 60 ft. wide across the marshes for the North London circular arterial road.

A special piling system has been employed on this work—the "Vibro" concrete piling system.

A strong steel preparatory tube, fitted with a detachable shoe, is first driven into the ground by means of a powerful steam hammer until the required depth and resistance determined by the "set" is obtained. The tube is then filled by means of a special loading skip which conveys the concrete from the mixer and discharges direct into the tube. Whilst this is being done the extracting gear is engaged with the head of the tube, and sufficient concrete of medium mix having been supplied, the "Vibro" steam hammer is set into reverse action. The withdrawal of the tube, which is furnished with an enlarged surface at its lower end for ramming, is accomplished by a series of vertical up-and-down movements of a rapid vibratory character, which effectively deposits the concrete and tamps it thoroughly into a sound monolithic column. The detachable pile shoe is left behind, and forms a firm seating driven into hard strata. The tube is then completely withdrawn, and so, in minimum time, a concrete pile of perfectly consolidated concrete is produced.

One can imagine grave and grey professors arguing how these long piles of concrete were driven to such a depth, how so accurately and precisely placed, and marvelling at the great engineering of A.D. 1925.

"Berger's Mercury."

"Berger's Mercury" maintains its reputation of being one of the brightest of the many journals issued by commercial and other firms. It is published by Messrs. Lewis Berger and Sons, Ltd., of Homerton, E.9, makers of colours, paints, and varnishes, and the first issue appeared in 1914. The current number contains on the cover an illustration of the Midland Bank, Piccadilly, which has been painted with the firm's paints. The architect for the exterior of the bank was Sir Edwin Lutyens, R.A., and the architects of the interior were Messrs. Whinney, Son, and Austen Hall. It also contains a large number of other illustrations of building exteriors and interiors which should be of great interest to all interested in decoration. There are many literary features, among the most prominent being articles on "Architectural Reflections—Form and Colour," "Personality Advertising," and "Factory Painting." In an article on "Whitewashed Walls," it is stated that: A "Paint More—Save More" propaganda campaign seems to be overdue in South America. In the big cities of Brazil, Uruguay, and Argentine, the quality of building materials used is stated to be "second to none in the world;" but . . . an onlooker, just returned, says it is most astonishing to see buildings being erected almost without consideration of cost—in which the most perfect sanitary fittings, electrical goods, beautiful wrought-iron work and exquisite polished hard woods are used, and where the walls are—*whitewashed*. Merchants are always on the lookout for the latest and best in bathroom fittings, builders' hardware, etc., but have, apparently, long since given up trying to persuade architects and builders to specify and use the modern materials offered for interior decoration. It may be that wealth is so plentiful thereabouts, that the economy appeal falls on deaf ears, but one would have imagined that the Latin temperament could not have remained cold to the appeal to beauty.

The Carron Co.'s New Showrooms.

The Carron Company have opened new and enlarged showrooms at 123 Buchanan Street, Glasgow. On view is a representative display of "Carron" and "Longden" designs of high-class firegrates in appropriate settings, ranges, gas and electric cooking and heating appliances, and baths.

Steel Equipment for Glasgow University Library.

The Art Metal Construction Company of 31 Kingsway, London, W.C.2, have been awarded the contract for the steel equipment of the Glasgow University Library. The total cost is £22,461 2s. Amongst other libraries fitted in steel which has been manufactured by the company are John Rylands Library, Manchester, Edinburgh University Library, and the London Library, St. James's Square.

The Lighting of Cinemas.

Several cases of cinemas in which electricity is obtained by local generation are mentioned in the current issue (No. 134) of "A Thousand and One Uses for Gas." This interesting publication, which also contains numerous photographs of cinema exteriors brilliantly and economically lighted by high-pressure gas, contains information which every cinema proprietor should read. It can be obtained free of charge on application to the Secretary, The British Commercial Gas Association, 28 Grosvenor Gardens, S.W.1.

Light Steelwork, Ltd.

The business of Light Steelwork, Ltd. has been acquired by Mr. J. Chas. Moore, late manager and director, and a new company under the name of Light Steelwork (1925), Ltd., is in process of formation, of which he will be managing director. Much larger and adequately equipped works at Willesden will enable the new company to deal with a considerably increased volume of business. The offices have been transferred from 178 York Road, N.1, to 25 Station Road, Harlesden, N.W.10 (close to Willesden Junction Station).

The Gas Exhibit at Wembley.

This year the gas exhibit at Wembley will be full of movement. Prominently displayed on the main gangway will be a motor manufacturing exhibit arranged to show the uses of gas in that industry. A similar space on the other side of the pavilion entrance will show two gas engines—one of them 150 horse-power and over 9 ft. high—continuously at work. Other industrial appliances will be seen in operation, including a working exhibit of pottery making with gas-fired furnaces. Another section will show the applications of gas in hobbies such as woodwork, model making, metalwork, and amateur wireless. In addition there will be daylight cinemas, illustrating the thousand and one domestic and industrial uses of gas, and cookery demonstrations and lectures.

Ferodo Stair Treads and Flooring.

Messrs. Ferodo, Ltd., of Sovereign Mills, Chapel-en-le-Frith, have sent us a copy of their new catalogue and price list dealing with Ferodo patent woven stair treads and flooring. The stair treads are suitable for fixing to every type of staircase, and are made in four types: (1) standard stock lengths, with bound edges; (2) type A—nosing; (3) type B—nosing with flange; and (4) type C—flat strips. Each type is supplied in the following colours: light brown, dark brown, green, red, and blue.

The standard stock lengths are supplied in two thicknesses, heavy and medium, with bound edges. These treads are applicable to all kinds of stairs, and should be placed on the front of the step. The remaining back portion may be fitted with linoleum, rubber flooring, carpet, etc. Type A nosings are made in any length to order, and type B nosing is made in one thickness only and is provided with a special flange, which fits under the linoleum, or other backing, and enables a neat joint to be made with the Ferodo nosing. Type C (flat strips) are made in heavy and medium thicknesses for special application and for use at the back of Ferodo nosings. They are made in any length, and in various widths.

Ferodo patent woven flooring is claimed to be an excellent floor covering for rooms, corridors, landings, passages, etc., where there is heavy foot traffic. It is made in two thicknesses, known as heavy and medium, and in several colours with contrasting borders.

Trade and Craft—*continued.*

Floodlighting at Sheffield.

The tower of the "Sheffield Telegraph" building, situated in the centre of Sheffield, has been illuminated by floodlights. The installation consists of eleven B.T.H. floodlight projectors, designed by The British Thomson-Houston Co., Ltd., and the work was carried out by The Borough Billposting Co. Seven of the projectors are mounted on the flat roof, and are trained in such a way as to illuminate three sides of the tower. Each of these seven projectors is equipped with a 500-watt. Mazda gasfilled projector type lamp. The other four projectors are mounted on the roof of another building on the other side of the road for the purpose of illuminating the front of the tower. Each of these projectors also is equipped with a similar projector type lamp.

Examples of Important Reinforced Concrete Structures.

The extent and variety of the operations of Messrs. D. G. Somerville & Company, Ltd., increase each year, so that they feel themselves in a position to claim that they are now among the best known reinforced concrete engineering firms in the country. They have incorporated under one management a number of subsidiary companies, with the result that with undivided responsibility, contracts of almost any description may be carried through from start to finish. Examples of the work of the subsidiary companies are shown in a new illustrated book which has just been issued. From these it will be seen that the firm are in a favourable position to undertake large contracts for buildings and public works. The examples shown are of great variety. In engineering the work of the firm includes bridges, bunkers, railway construction, water towers, tanks, wharves, piers, jetties, and foundations; and in building, retaining walls, churches, factories, business premises, power houses, places of entertainment, hospitals, and housing schemes. Among the many architects for whom the firm have executed work are Sir Charles Nicholson, Messrs. Belcher and Joass, H. Dighton Pearson, F.R.I.B.A., Taperell and Haase, J. Moir Kennard, Stock, Page and Stock, G. F. Collinson, F.R.I.B.A., Yates, Cook and Darbyshire, Leonard Stokes, F.R.I.B.A., J. H. Storrar, Lamb and North, R. S. Weir, Cecil Masey, Licentiate R.I.B.A., T. Duncan Rhind, F.R.I.B.A., W. H. Brierley, F.R.I.B.A., F.S.A., J. Hervey Rutherford, and W. Dixon and Son. The firm also show examples of their reconstruction and other work in the war areas. The Terlingthun cemetery, which was opened by the King and Queen, was one of the 110 cemeteries constructed by the firm in Northern France and Belgium. Copies of book, which contains over 180 illustrations, can be obtained from the head of the company, 35 Grosvenor Place, Westminster, S.W.1.

New Inventions

Latest Patent Applications.

10497.—Lipscombe, H. W. J., Pratt, W. T., and Aerozon Air Conditioning Co., Ltd.—Ventilation of buildings. April 22.
10473.—Allison, R. M.—Construction of concrete buildings. April 22.
10259.—Breuer, A.—Structural elements. April 20.
10531.—Brierley, S. G.—Resilient floors for buildings. April 23.
10560.—Gell, J.—Concrete walls. April 23.
10640.—Kelley, E.—Building construction. April 24.
10190.—Liversedge, J. W.—Shuttering for construction of walls, etc. April 20.
10766.—Newby, E. C. St. A.—Building and facing of concrete walls. April 25.
11156.—Buckhout, W. C.—Wall construction. April 29.
11039.—Eeles, A. M.—Reinforced concrete, &c., structures. April 28.
11428.—Gammell, S. J.—Concrete walls. May 2.
11227.—Ling, F. A.—Shutters for constructing concrete walls. April 30.
11009.—McKenzie, J.—Wall ties. April 28.
11285.—Monolithic House Construction Co., Ltd.—Cement chargers, &c. April 30.
11157.—Paveley, J. H.—Building brick. April 29.
10980.—Spearman, E. A.—Building construction. April 28.
11264.—Whitmore, T. G.—Concrete constructions. April 30.

Specifications Published.

232362.—Taylor, A., and Taylor, E. W.—Surveying instruments.
231946.—Frewen, E. J.—Form of hollow or cavity building-blocks.
232033.—Walshaw, H.—Surveyor's levelling instruments.
232134.—Gartner, P.—Concrete fencings.

Abstracts Published.

230712.—Bennett, W. J., 3 Geariesville Gardens, Cranbrook Road, Ilford, Essex.—Block coverings for walls and floors.
230349.—Crowther, G., 163 Manchester Road, Kearsley, near Bolton.—Scaffolding.

The above particulars are specially prepared by Messrs. Rayner & Co., registered patent agents, of 5 Chancery Lane, London, W.C.2, from whom readers of the JOURNAL may obtain all information free on matters relating to patents, trade marks, and designs. Messrs. Rayner & Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1/6 each.