Wednesday, August 6, 1924. Vol. LX. No. 1544.

THE ARCHITECTS' JOURNAL & Architectural Engineer

With which is incorporated "The Builders' Journal."

FROM AN ARCHITECT'S NOTEBOOK.

The Grecian gluts me with its perfectness,
Unanswerable as Euclid—self-contained;
. . . . . .
But ah! this other, this that never ends,
Still climbing, luring fancy still to climb,
Imagination's very self in stone.

UNIDENTIFIED.

27-29 Tothill Street, Westminster, S.W.1.

War Memorials : 45—Paisley

Sir Robert Lorimer, A.R.A., Architect

This memorial, which has just been unveiled, has for its crowning feature a sculpture group in bronze, by Mrs. Meredith Williams. The base and the wing walls are of granite. Some further particulars are given on page 224.

THE

ARCHITECTS' JOURNAL

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Modernity in Design

AT all epochs of architectural development there have been manifestations of a desire for freshness of expression. Brunelleschi, Michelangelo, Sir Christopher Wren, Robert Adam, and a score of others dreamed and realized creations which were definitely personal and also unmistakably of their epoch. They were modernists. Modernism, as we see it to-day, is derived from the same generating forces as of old, but has this distinctive characteristic, namely, that the scope of expression in fresh design is to-day enormously increased by far-reaching discoveries in the possibilities of new materials.

These new materials open up architectural possibilities which will only be realized by slow degrees; but the logical expectation of a modified character in design, consistent with fresh constructional resources, is something which provides a real justification for present-day departure from tradition. The modifications seem in all reason to be called for; in other words the desire for change becomes a spontaneous thing and not an extraneously inspired fashion, and in spontaneity lies the apology for unfortunate experiments and necessarily tentative beginnings.

In England, modernism has had its exponents for many years, but these men have shared the fate of most prophets—they were before their time; and those that survive professionally to-day are even now uncertain of any personal harvest from their progressiveness. They are likely, however, to benefit by the reaction towards modernism which appears to be setting in as the result of reaction in this country and the very potent influences emanating from the northern countries of Europe and the western States of America.

Who, for example, has followed up on any scale the work of that fertile modernist Sir John Soane? His expression was personal perhaps, but it is strange to find, gathered together in that excellent little book which Mr. Arthur Bolton has produced, so many examples of the treatment of modelling and line having kinship with the most advanced modernism of Western Europe. Soane was merely a modernist of another epoch, and one who dealt with a more limited range of materials. The illustrations of his work are bulging with suggestion for the modern designer, and his characteristic ornamentation may well contain the germ of decorative possibilities for reinforced concrete. But with all this he had a very limited following.

In our own time we find many originators. Such men as Mackintosh, in whose buildings at Glasgow and elsewhere we may find a foretaste of what modernist Holland is giving us to-day. An able and advanced designer, but apparently little understood or appreciated by the majority.

The names of more contemporaries occur—chosen at hazard, not with the pretension of exhausting a list which, however, cannot be a long one—Eustace Frere, Joass in some moods, Edgar Wood, Adams and Holden, Sir John Burnet and Partners (in their later work), and, though perhaps the impeachment would be denied, Sir Gilbert Scott. There are, of course, scores of younger and unknown men who could be classed as moderns, but they have not yet had their opportunity for self-expression.

These men who have achieved in their work a flavour of the modern spirit have not done so, one feels, as the result of extraneous influences. Pioneers, and consequently faced with more than the usual difficulties, they must have designed as they felt, with conviction. The result in some cases is astonishing. How completely, for example, has the face of Westminster Hospital been modified by the comparatively slight alterations which Messrs. Adams and Holden have carried out. They have left the stamp of their personality, a modern personality, on what was previously a dingy eyesore. The building which results has a modern personality. How the manipulation of form, the stressing of proportions and lines can alter the physiognomy of buildings is the secret of the designer. But buildings have physiognomies—that is certain—some with Roman noses, some with mutton-chop whiskers, and others with cuticles couperosed and unshaven! The buildings of Adams and Holden have faces open and frank, resolute and clear, and perhaps unemotional, while the faces of the buildings by Frere are those of polished and courteous gentlemen having no little refinement and much charming urbanity. But in both cases the faces are the faces of our epoch.

As opposed to these architects who are designing, as it were, from the inside out, we have scores of men who are beginning to adopt a sort of pseudo-modernism, which upon investigation appears to be little more than the adoption of some manner of design which is sufficiently remote in origin to distil a superficial impression of freshness. The little houses, for instance, which have broad eaves with plastered soffits, in the design of which balance with prim symmetry the garage and the loggia (or the pergola with the potting-plus-tool-shed), have an un-English look, an appearance of departure from tradition, which brands them generally as modern. But really they are often no more original than the hipped roofed and tile-hung cottages of Kent and Sussex; they merely derive their inspiration from farther afield, perhaps from Italy, or Spain via California or Florida. But the architect who designs a house with windows without glazing bars, perhaps without chimneys, with a satisfactorily treated sleeping-porch, and all this in cheap materials, and at the same time with beauty of effect, that man is a modernist—because he is trying to give, and to give with æsthetic satisfaction, that which so many modern people want. He is again designing from within, and letting his requirements dictate his forms.

This is by no means equivalent to admitting that in modern design one may expect or desire that materials should dominate design. Form is to a certain degree independent of materials, because material limitations will never for long be allowed to dictate design. Either the material will be improved and its limitations overcome, or a new material with similar qualities but devoid of these hindrances will be evolved. So that modernism in design should not lean

too much on structure, but rather set its aims towards the expression of character and function and honesty of purpose—this last meaning the casting aside of the desire for meretricious attention and pretension. Inflated expression of modest functions is a great contributing cause of failure in much modern work.

For the young designers to whom most naturally "modernism" appeals as a logical progress in architectural evolution, modern design is full of pitfalls. A few attempts to design, say, in the manner of Sweden, Holland, or Lloyd Wright reveal the difficulties of a satisfactory expression. In such design one soon finds that more than ever are the fundamentals of composition called upon to be observed, and, in addition, a complete new vocabulary of detail and decorative treatment has to be created. In the effort towards modernism is found, therefore, the true safeguard for a continued reverence for traditional work, and an insurance against discontinuance of the study of fine old buildings. For in this old work of the best periods, regardless of style, are found the laws of composition exemplified. And, fortunately for the future of modern design, the laws are open for reference only to the student and the searcher; in all matters of art, including the attainment of a modern expression, study, endeavour, and practice seem to be the only short cuts towards lasting success.

HOWARD ROBERTSON.

The Building Dispute

At the moment of writing discussions between the representatives of the building trade employers and operatives still continue, though it would seem without much prospect of a settlement of the dispute which, beginning in Liverpool four weeks ago with a local strike, has developed into a national lock-out. It is a thousand pities that, with the machinery which has been specially provided for the settlement of industrial troubles as they arise, these affairs should be ever allowed to reach the acute stage. Yet, with human wisdom in its present low state of development, it is perhaps unreasonable to expect any other outcome. While employers and operatives continue to range themselves into opposite camps, and prefer to regard each other as enemies rather than as—well, if not exactly friends, at any rate human beings whose interests in the long run are identical, so long must we expect to have conflict instead of co-operation. If strikes and lock-outs produced some definite good, they might be endured as necessary evils, but they never do; whichever side wins, the other is left with a sense of grievance that promises more trouble for the future. Strikes and lock-outs mean loss all round—for employers, operatives, architects, building owners, and, ultimately, the community as a whole—but loss especially for the employers, large numbers of whom may be only indirectly affected by a dispute (as in the present instance). While we organize nationally we must apparently have national agreements, yet obviously it would be better from every point of view to confine local disputes to areas in which they arise. Having national agreements, however, it is an honourable obligation upon both parties to observe them faithfully, though to the impartial observer it would seem that the trade unions are quite incapable of abiding by their pledges. In the space of a short note it is impossible to discuss this extremely involved problem in any detail. It may be said, however, that any remedy for existing troubles implies an atmosphere of good-will that is at present far to seek. The building industry is one of the most difficult to carry on at any time. For large numbers of operatives employment, owing to the seasonal nature of the trade and the ever-changing incidence of operations, is necessarily irregular. There is, of course, the casual labourer] who does not want full-time work; upon the willing, conscientious worker, however, existing conditions press with considerable hardship. With such men the utmost sympathy is felt by the great bulk of employers. Whether or not it is possible for the industry itself to improve its working conditions by providing some form of insurance against irregular employment is a question for the industry itself to investigate. If it can be done, it should be done. The establishment of a scheme that would afford some measure of security to willing workers would do more to preserve peace and promote good-will in the building trade than any number of national agreements. On this point we note that Mr. Ernest Lesser, Chairman, London Building Trades Apprenticeship Committee, writes to "The Times." He says: "Public opinion nowadays, if properly informed, is prepared to give the working man a square deal, but, not unnaturally, it expects a square deal from him in return. If he would make up his mind to give an honest day's work for an honest day's pay and have done, once and for all, with the dishonest and delusive ca' canny policy, I feel convinced that the whole community would back him solidly in his demand for a less precarious status in the industry than he at present enjoys. For there is no denying the fact that the insecurity and instability of the operative's position, due to various causes, has hitherto been the great curse of the building industry. It is at the bottom of the ca' canny movement. I verily believe that, if a more assured position could be guaranteed to building craftsmen in the future, they might be induced to accept a lower wage and possibly work a longer week, when necessary." In the meantime the dispute drags on, and it is thought, in well-informed quarters, that a settlement is not likely to be reached for a month to come. Cannot architects do something to hasten an agreement? On this point we note that Mr. Sydney Tatchell has addressed a letter to "The Times. He says: "It is perhaps not sufficiently appreciated that architects are deeply concerned in this matter. Their livelihood, equally with operatives and employers, is dependent on the building industry, and it is unfortunate that the profession of architecture was not represented at Lord Buckmaster's inquiry. There are distinguished members of the Royal Institute of British Architects who possess technical knowledge, judicial minds, and business acumen, and in whom, moreover, both sides would place entire confidence, who might be asked to lend their aid in this emergency. A round-table conference at this juncture with an architect as chairman would, in my opinion, result in some acceptable basis of settlement being found." Will the Institute take the lead?

Mr. Churchill's Truths

Mr. Winston Churchill never uttered a truer word than when, speaking at the annual prize-giving at the Architectural Association, he said: "We make our buildings, and afterwards they make us. They regulate the course of our lives"—though he might have chosen some more appropriate building than the House of Commons to illustrate these profound truths. The "House," as a matter of fact, does not support the argument at all well, for the three-party system has come into existence in spite of the rectangular shape and the facing benches of the debating chamber. This, however, does not affect the fundamental truth of the observation. If Mr. Churchill had given housing as his illustration he would have carried immediate conviction. The inferior housing accommodation of the working classes has been largely responsible for producing what another distinguished politician has described as our "C3 population." It is encouraging to find that our statesmen do appreciate the effect of buildings upon the lives and character of the people, but it is at the same time rather perplexing that most of them do little towards effecting an improvement—except talk. If they will only "do" for a spell—and by "doing" we mean see that not merely are houses provided in sufficient number, but that they conform to a reasonably high standard of structure and accommodation—they will deserve well of the electorate. Also they will have the personal satisfaction of knowing that they have made practice accord with precept—a phenomenon of rare occurrence.

The International Exhibition of Students' Work

A Critical Commentary

THE exhibition of work of schools of architecture abroad, held at Grosvenor House (by permission of the Duke of Westminster), is one of the most interesting that has been held for some time. Mandeville nor Marco Polo themselves did not meet with things more strange and surprising than do we in viewing the works brought from Austria, Denmark, France, Holland, Hungary, Italy, Norway, Portugal, Spain, Sweden, and America, and hung upon the walls of an English gentleman's house in Park Lane.

Austria, as we enter room one, gives us a shock. Here are the early efforts of the disciples of Erich Mendelsohn, very forceful affairs in black and white, water reservoirs, windmills (such as others beside Don Quixote would tilt at) power stations—all very suitable things in steel and concrete upon which to practise the "new art." The "House of a Lover of the Arts," however, one would imagine might be more human. Not a bit of it. It clings to the side of mountain rock as unapproachable as a Thibetan monastery in the fastnesses of the Himalayas. The "Great Farmhouse in Salzburg" (which comes to us from the Technical High School, Graz) is more like one of their great bombing planes than any farmhouse. The roof is tilted at every angle, as if for lifting itself on every air-current, and plan and elevation support the illusion in every line. Some of the other work sent over, however, is just like ours.

The Swedish and Dutch Work

The drawings from Sweden indicate some pre-occupation with planning. Six years of training are demonstrated, and though the drawings in themselves are not of the spectacular sort (indeed, the exhibit is only small photographic reproductions of the originals), one should not forget that drawings are but a means to an end. Perhaps, for exhibition purposes, however, some concession should be made to the general public, for interesting drawings always help towards the better understanding and appreciation of a fine building. In this instance much really excellent work is hidden by the rendering.

Room two is given up to Holland. Here every thingis quite understandable, and you do not feel in need of a guide to tell you what it is all about. There are sensible houses, sensible public buildings, and all the designs are beautifully presented. Besides the work hung round the room, five portfolios show the normal production of one student during the first, second, third, and fourth years; portfolio five gives a selection of the work of different students during their fifth year. Much hard work and application are implied. And because of their labours they have been given freedom—freedom from the old bondage to Classic column and Gothic arch. But they can dream, too. Might not one of those framed designs be the title-page to Hans Andersen or Grimm? The training of the Dutch students seems most nearly to approach that of the British. There is the same five-year course, and the same groundwork of geometry and building construction.

The French Section

The work of France occupies two rooms (rooms three and four). Here you receive the surprise and shock which come to an English rustic in Paris for the first time. Irrepressible gaiety is here—"laugh I will, my lord, and as loud as I can!" And you hear the snapping of fingers over your head. What shall be said of "Une Ile Flottante sur L'Atlantique"? Would anyone in "Brighter London" have thought of this? Leviathan-like upon the face of the waters, with every port-light ablaze, it is cut off by miles of ocean from the dullness of the world, and every Sindbad is a millionaire.

Every mood is represented, from that of supreme good humour to the macabre. But, in their lightest moods even, they are slaves to the tradition of the Renaissance–they have it very much at heart—they cannot break away. Indeed, there is exhibited as handsome a piece of conventionality as was ever hung on the wall of a mid-Victorian drawing-room. It bears no title, but it cannot be missed: its presentation requires the whole of one corner of room four. This remarkable labour, which might be an asylum for the widows of elderly civil servants, must have occupied the student's time during the whole of a winter's session.

How can it be said that they order these things better in France?

A fine piece of architectural engineering is exhibited in a bridge over a gorge, but for the most part, neither in draughtsmanship nor in design, do we prefer the French work to that of America or our own.

The American Section

The American exhibit, which is in room five, and overflows down a long corridor, certainly contains some of the best work in Grosvenor House. If the wonders of Babylon excite the surprise of the moderns, by pointing to New York we might be able to make the ancients of Babylon gasp. There are office buildings which might be mistaken for cathedrals; if the American were as devout as he is business-like, what would his churches be! Nearly everything architectural is here assayed—a lighthouse, compositions in, and with, the various Orders, blocks of flats, villas, banks, factories, and a floating island. If there is something restless about it all, it is because of the immense energy underneath.

Spain and Hungary are represented in room six. Here the feeling is very national, and one feels about one the mantle of other days. The Spaniards apparently are producing the same work as in the days of the grandees and hidalgos; and the Hungarian work has changed so little as to conjure up visions of "a land where all things always seem the same."

Italy, too (appropriately enough hung in the Entrance Hall), seems wrapped in the mantle of the Renaissance, but, like the golden brocade in a queen's sepulchre, its imperishable splendour is stretched stiffly across the skeleton of a life and thought which inhabits there no more. Surely this exhibit (it is sent by the Royal High School of Architecture, Bologna) is not representative of the present work of Italian students: after listening to the eloquence of the Italian professors at the Congress, is this all one sees?

In the gallery of the R.I.B.A. (No. 9 Conduit Street) are hung works prepared at the British School at Rome, the French School at Rome, and at the American Academy at Rome. The British work comprises drawings by H. Chalton Bradshaw (his well-known Restoration of Præneste, dated 1919, and a plan of the centre of Rome in the time of Constantine), by F. O. Lawrence (Rome Scholar 1920—Restoration of Forum), and by S. Rowland Pierce (Rome Scholar 1921—Restoration of Hadrian's Mausoleum and Pons Aelius). Undoubtedly the drawings of Mr. Chalton Bradshaw are the most brilliant, as they are the most scholarly, but it is doubtful if, in our lifetime, we shall see another Rome scholar of his promise and achievement.

The French work by M. Boutterini (Rome Scholar 1911) is very spectacular, but lacks the distinction of the British work.

H. J.

Old Clerkenwell

By ALWYN R. DENT, A.R.I.B.A.

THE visitor to Clerkenwell can perceive nowadays little to remind him of the suburban village which, though contiguous to the City, preserved up to the beginning of the industrial era a certain individuality. Nevertheless, Clerkenwell Green, though long since devoid of verdure, still indicates the nucleus of the village which grew up around the Priory of St. John of Jerusalem (the site of which is marked by St. John's Square and Gatehouse), and was, as history informs us, environed in the seventeenth century by the mansions of the noble and opulent, who here found a secluded residential area adjacent to the City.

"There are also around London on the northern side, in the suburbs," says Fitstephen, *c.* 1180, "excellent springs, the waters of which are sweet, clear, and salubrious, amongst which Holywell, Clerkenwell ('Fons Clericorum'), and St. Clement's Well are of most note."

The name Clerkenwell is derived from the fact that hither the parish clerks of London were wont in mediæval days to assemble annually and perform their miracle or mystery plays, lasting for a week or more. Amongst the noble families resident in Clerkenwell were the Bruces, Earls of Aylesbury, Spencer Compton, Earl of Northampton (the site of whose mansion is now Northampton Square), and in Clerkenwell Close was Newcastle House, the residence of the Dukes of Newcastle, as is evidenced by an entry in the diary of the ubiquitous Pepys :—

"May 10, 1667. Drove hard towards Clerkenwell, thinking to have overtaken my lady Newcastle, who I saw before us in her coach, with 100 boys and girls looking upon her."

In the year 1612, Sir Baptist Hicks, Knight, one of the justices of the County of Middlesex, built at his own cost "a very stately Sessions House of brick and stone" in St. John's Street. Prior to this, it appears that the magistrates had no better accommodation than the upper room of a tavern for the administration of their duties. "Hicks' Hall," as it was called, appears in an old print as a quaint Jacobean edifice of modest proportions. In 1777 this ancient building was in such a ruinous state that it was deemed advisable to obtain Parliamentary powers to rebuild it; the site, however, was objected to as inconvenient, and eventually a new site was chosen on the west side of Clerkenwell Green, and Hicks' Hall was eventually razed to the ground.

The first stone of the new building was laid on August 20, 1779, and it was opened on July 1, 1782, the total cost being £13,000. We read that the Duke of Northumberland performed the opening ceremony, riding in procession with the justices, and municipal dignitaries, the carpenters, masons, etc., following, each accompanied by the implement of his trade. Subsequently, "the company partook of an elegant cold collation at Hicks' Hall, and dined at the Jerusalem Tavern in Red Lion Street."

The architect of this well-proportioned structure was Thomas Rogers, of whom little is known. In 1766–7 he exhibited at the "Society of Artists of Great Britain." Subsequent to designing the Sessions House he succeeded S. P. Cockerell as clerk of the works at the erection of the House of Correction in Coldbath Fields, 1789–1794, and appears to have died after 1808. The façade is a refined and elegant example of late eighteenth-century architecture. The treat-

THE OLD SESSIONS HOUSE: THE REAR ELEVATION. BY F. H. POWNALL (1860).

The Old Sessions House, Clerkenwell

Thomas Rogers, Architect

The Old Sessions House, Clerkenwell, was built 1779-1782 from the design of the little-known architect, Thomas Rogers. The treatment of the delicate Ionic caps and medallions by Nollekens is reminiscent of the work of the Wyatts at Trinity House and the Pantheon, though the Sessions House ante-dates the former by some twenty years.

The Old Sessions House, Clerkenwell : The Main Staircase Hall

Thomas Rogers, Architect

"In the interior, the main staircase hall is well proportioned, but the courts are small and cramped, the central one being very badly lit."

The Old Sessions House, Clerkenwell : A Detail of the Main Staircase Hall

Thomas Rogers, Architect

The main staircase hall is richly detailed in cornice and pendentives, and crowned by a coffered dome.

ST. JOHN'S CHURCH.

THE TOWER OF ST. JAMES'S CHURCH.

ST. JOHN'S CHURCH: THE DOORWAY.

ST. JOHN'S GATE, NORTH SIDE.

OLD CLERKENWELL.

ment of the delicate Ionic caps and medallions (Justice and Mercy, with George III in the centre) by Nollekens, are reminiscent in a way of the work of the Wyatts at Trinity House (1793) and the Pantheon (1772), particularly the former. In the interior, the main staircase hall is well proportioned, but the courts are small and cramped, the central one being very badly lit. The interior arrangements were found to be so inconvenient that it was reconstructed in 1860, under Mr. F. H. Pownall, architect (the county surveyor), and has been altered since. The work of Pownall appears in the exterior treatment of the rear façade and side wings, and is bold and well considered, though scarcely in character with the delicacy of the old façade. The building is at present vacant, the sessions having removed some few years back to the new L.C.C. Sessions House at Newington Green (designed by Mr. W. E. Riley, F.R.I.B.A.). Hither also was removed a fine old Jacobean chimney-piece, which was originally taken from Hicks' Hall.

To the northward of the Green stands the Church of St. James the Less, whose late eighteenth-century spire stands out over the shops and warehouses which surround the Green—beckoning to Paul's dome in the distance, as if one of its City brood adrift from the sound of Bow bells. Situated on the site of the twelfth-century St. Mary's nunnery, it was designed by James Carr in 1788. The height of the tower, and the elevation of the ground on which it stands, produce a rather more imposing effect than that of many contemporary churches of similar design. The interior is unique in possessing two galleries, the top tier being a later addition.

The Priory Church of St. John of Jerusalem, in St. John's Square, is in many ways a building of singular interest. A sober eighteenth-century façade of brick and stone (c. 1720)—with a finely-carved wood doorway—is superimposed on an old mediæval foundation. Within, a strange contrast of Renaissance and Mediæval strikes the observer; a light and airy gallery rests on slender columns, beneath whose bases the foundations of massive Norman piers are to be seen, and facing which traceried Gothic windows fill the east end; below is an ancient crypt.

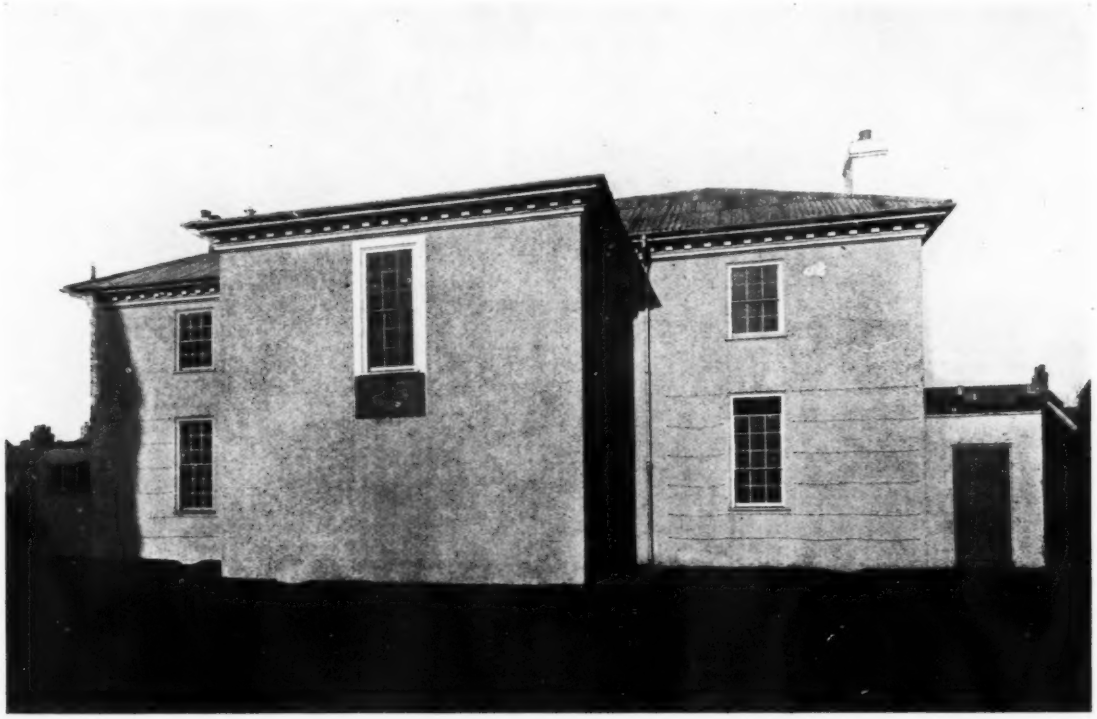
A very interesting problem, which has scarcely yet been touched upon by town planning legislation or literature, is that of the consideration of those former suburban villages, which gradually became enveloped in the spread of industrial London. At this stage, it may seem hopeless to stem the tide of deterioration, or to regain lost individuality; nevertheless, some of these suburban backwaters might well be transformed by a gradual process of intelligent civic survey and analysis with a view to the preservation of old squares, etc., and encouragement of local character. Not the least part of this transformation involves the liberal use of the paint pot; it is easy to visualize the effect which freshly painted woodwork and balconies in old Georgian streets has of reviving the amenities of a district which, through many mutations, still preserves many interesting individual features.

Balliol Boys' Club

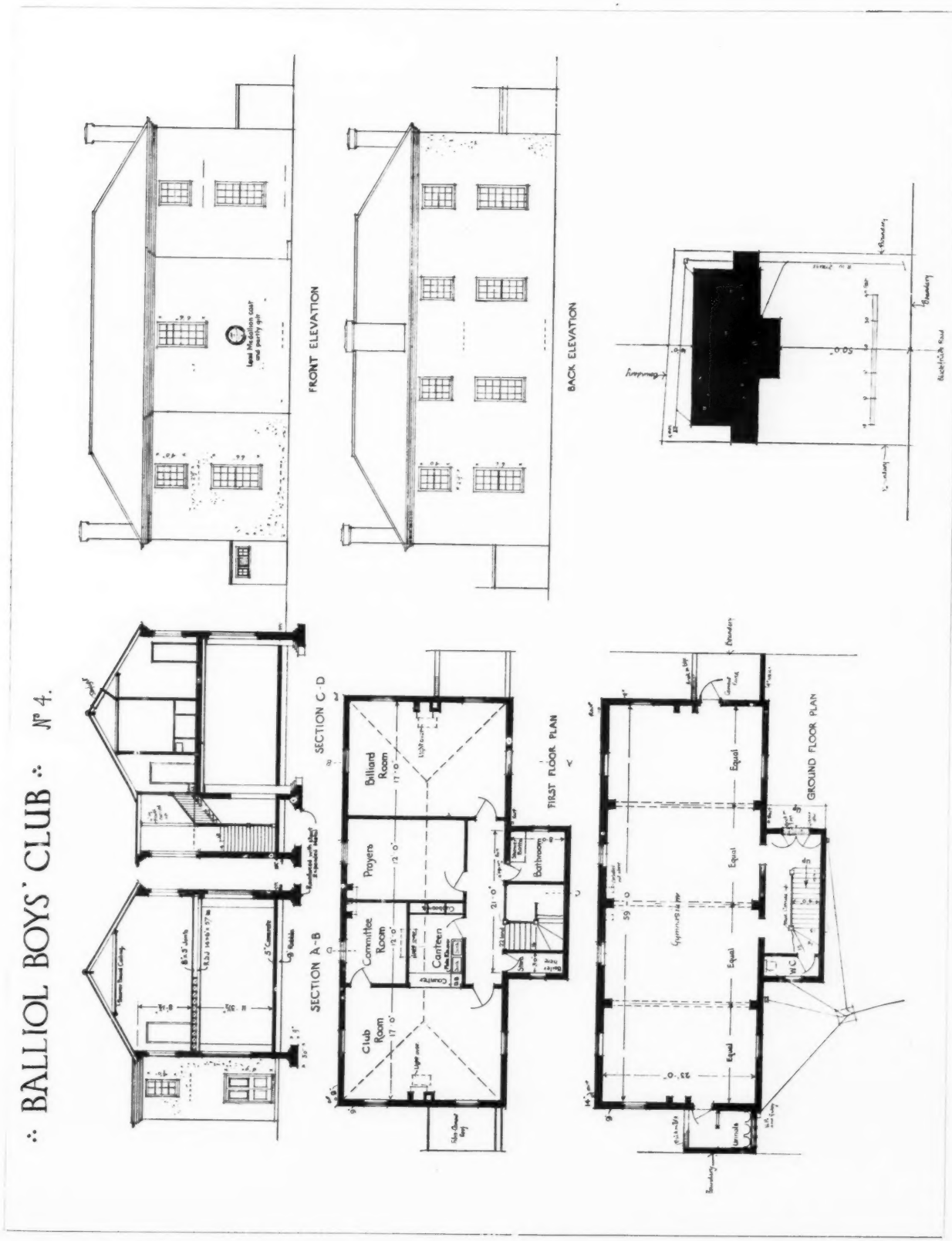
W. G. NEWTON, M.A., A.R.I.B.A., Architect

THIS club is built on a site off the Blackfriars Road, in one of the less-known quarters of Oxford towards the railway. It is built as shown right at the back of the site in order to leave as much space as possible in front for a summer playground. The building itself is of brick, rough cast, and finished cream colour. The cornice is built of bricks and tiles, except the top member which is wood. Roofing materials in 1921 were very hard to get, and it was found necessary to use corrugated fibro-cement, which detracts from the apparent solidity. The doors are painted a bright blue-green, and the lead tablet with its dedication is gay with gold and colour. An attempt, fortunately as yet unsuccessful, has been made to train creepers over the walls.

The contractors were Messrs. Benfield and Loxley, Ltd., of Oxford, and the lead tablet was cast by Mr. J. L. Emms.



THE FRONT ELEVATION



W. G. NEWTON, M.A., A.R.I.B.A., ARCHITECT.

The Educational Congress

The International Congress on Architectural Education opened on Tuesday morning last week (following a reception by the President and Council of the R.I.B.A., the previous evening, at 9, Conduit Street), with the reading of papers on architectural education in the past; the present and future being discussed on successive mornings. Précis of the papers are given herewith. Other items of the programme are dealt with on page 221.

1.—Architectural Education in the Past

France

By PAUL LÉON, Directeur des Beaux Arts

THE architect, in the sense in which we understand that word, dates really from the Renaissance. To the new name correspond new functions. He no longer belongs to a corporation; he is an artist brought up more on theoretical studies than trained in the practice of a craft. Whilst the master builder had difficulty in writing his signature, the architect received the benefit of the bourgeois education. He read treatises; he could in his turn write them. He gave orders to corporations without having belonged to them; he no longer took direct part in the undertaking. Such an architect is Philibert Delorme, whose universal culture makes one think of the education of a Montaigne.

The State teaching of architecture dates from the reign of Louis XIV; it coincides, one may say, with the academic institution. The glorious example of Cardinal Richelieu, the knowledge of Italy, where societies of artists and learned men were flourishing, induced Mazarin in 1648 to found the Academy of Painting and Sculpture. Colbert continued his work: in 1663 the "Small Academy," prototype of the Académie des Inscriptions et Belles-Lettres, in 1666 the Academy of Science and the French Academy in Rome, in 1671 the Academy of Architecture. Perrault had prepared a scheme of a general academy, an anticipated image of our Institut de France; Lebrun had in view at least the fusion of the two Academies of Plastic Art. They remained separate even though their objects were identical. They were destined to enable the artists to break the bonds of the trade corporation, to free pure research work from the applications of a craft. The academic institution, which later became subservient to rules, was the outcome of a revolt against any rules.

In 1762 the appointment of Jacques-François Blondel, to whom the academy decided to give as assistant David Leroi, the famous Hellenist, widened the programme and the range of the teaching. Twenty years previously Blondel, in spite of the academy, which did not bear malice to him, had opened in Paris a school in which he taught not only theoretical architecture but also its application to crafts. At his side taught the engineer Rogeau de Val, the painter Saint-Aubin, an expert draughtsman for stone-cutting, a building sculptor; practical work explained demonstrations; rich collections of books, drawings, models were at the disposal for free research; fencing rooms, music rooms, dancing rooms completed the education "of well-born men who dedicated themselves to architecture and were destined to live in select society." On Sundays and holidays free lectures were given to builders' workmen and craftsmen of all kinds. Forty elementary lessons, followed by visits to buildings, were intended for "persons of the first rank"—that is to say, for society men. To that great current of scientific popularization, inspired by the encyclopædia, belongs the foundation of a free school of drawing established by Bachelier in 1766, of which our present School of Decorative Arts still occupies the building which has now become disused and preserves the traditions which have remained alive.

This brilliant vigour was suddenly interrupted by the Revolution. The Act of August 8, 1793, which ordered the suppression of all academies, put an end to the legal existence of the Academy of Architecture without, however, stopping its teaching. David Leroi continued to collect his pupils round him during the storm. Besides, the Convention did not intend to weaken the national education, but, on the contrary, to give it a new impulse. The Act maintained the courses emanating from the abolished societies, and entrusted a committee with a plan for organizing a new society intended to advance science and arts. On October 19, 1795, was founded the "Institut de France," which, in the words of the introductory report of Daunou, was intended "to eclipse by its splendour all the Royal Academies, in the same way as the destinies of Republican France eclipse already the most brilliant periods of Monarchial France." The class of fine arts, first fused with that of literature, reconquered in 1803, its complete independence and received from Napoleon, between Elba and Waterloo, its final constitution. It had forty members in place of the 122 which constituted formerly the two Royal Academies.

The academic teaching, so strongly established on secular traditions which could not be shaken by the Revolution itself, was destined to be subject to violent attacks in the nineteenth century. The Romantics meant to shake the tyranny of Vitruvius as much as that of Aristotle. The supremacy of the mediæval art proclaimed by Victor Hugo, by Vitet, by Montalembert, opens on both sides of the Channel the era of Gothic revival, of which Viollet-le-Duc and Pugin were the initiators. To them Gothic architecture was to bring about the recovery of the sources of national inspiration and the establishment of principles of rational construction suited to the requirements of modern society. A latent fight goes on between Gothics and Classics. In 1831 Montalivet, Minister of the Interior, states the necessity of revising the programmes of official teaching. The plan sent from Rome by Labrouste, modifying the measures admitted for the temple of Pæstum, seems an act of rebellion and provokes at the academy most serious incidents. In 1841 Baltard, in proposing to his pupils in the School of Fine Arts to submit plans of a parish church, excluded "any composition that would bear the character of the Middle Ages and show the so-called Gothic forms." It is advisable, he adds, "to oppose strenuously the retrograde march given to our art by an influence foreign to rational studies." Against such a pretension Vitet reminds the architects "that they work in France and build for the French." "You are told," says Viollet-le-Duc, "of monuments of Elbora or of those of Palenqué, rather than of the Rheims Cathedral or Notre-Dame of Paris. The School of Fine Art dies from its isolation."

It is in these vehement protestations that is to be found the origin of the decree of November 13, 1863, which modified profoundly the organization of the school and introduced the régime which is still in force to-day.

Italy

By COMMENDATORE GIACOMO BONI

IN replying to the questions of the ex-Imperial Academy of Moscow, asking me for my opinion on the possibility of artificially fostering that Queen of the Fine Arts, Architecture, which is musical harmony crystallized, I must repeat my conviction that not all the edicts of Charles V or of the ex-Kaiser of Germany would have been sufficient to gild Titian's palette and to mould Donatello's bronze into smiling angels. Roman architecture has followed the track of the victorious legions, but that imperishable monument of glory of the Italian race, having faithfully kept to the traditions of sincerity and honesty, came to life again in the sixteenth century and imparted new splendour and beauty to the most barbarous places in the lands conquered by Rome.

The art is unfortunately getting lost at present, as it has been used to produce architectural fakes of *papier mâché* or reinforced concrete, in the service of the cinematograph industry, which is thoroughly mendacious and constitutes a libel on the Roman name. It is therefore necessary to return to a serious

and analytical study of the noblest authentic monuments of Roman architecture which have been produced by the great Italian artists of the fifteenth century and the whole of our Renaissance.

It is necessary to revert to serious studies, as I suggested in an address to the Senate on June 16, 1923, in connection with the restoration of the Curia and of the Imperial Forums and of the Temple of Antoninus and Faustina, which is to be converted into a museum of Roman architecture in order to bring to the notice of all Italians the superb patrimony of architectural creations that have been left to us by the old Rome, and in order that the architectural students should be able to find in the classical models of Roman architecture inspiration for new forms of beauty for future constructions, by studying the antique marbles, not, as it is generally done, from the documents and drawings of old academies, or from worn-out tracings that have lost all expression, but by absorbing the art from old stones like a breath of life.

I already stated it on that day : "It is useless to copy blindly under other skies and in other civilizations that which has already been expressed. But nothing could be more useful than to stop and learn thoroughly the lessons of measure, proportion, and rhythm taught by the old works; nothing of greater importance to the pupils of an Italian school of architecture than to come into contact with the monuments of Italian greatness; nothing more essential than to study them in the original, from the constructive elements to the architectural proportion, and decoration by sculpture, and painting; than to live in communion with the nature endued with all the forms capable of rising to the dignity of art, reflected and developed in the soul of the artist, possessing all the elements of an art which, being ours, must reflect the broadest perception of natural beauty, attained by forming a canon of beauty from the best of our human types."

My suggestion to the Royal Commission for an Archæological Avenue ("Passeggiata Archeologica") in Rome, besides contributing to the improvement of the street communication, would have facilitated the systematic arrangement of the great monuments of Roman architecture.

Now that the destiny of Rome follows a new course, and with that of Rome the destiny of Italy and of the world over which hovered the wing of the Latin genius, I address the supreme exhortation not to neglect, in deciding the fate of the Temple of Law, of Religion and of Duty of our forefathers, her admonishing voice; the voice whispering from the ruins of the civilization which was destroyed and broken or dispersed on account of its scepticism, on account of its having broken faith with itself in failing to respect the sacred duties of Right. Voices which remind us—with the testament of Julius Cæsar in favour of the people of Italy—that our people has a latent desire for, and an obvious want of moral, intellectual, and physical education, of instruments of education to which should be made to contribute, by being dedicated to the work of supreme public utility, educative and scientific, the Hall of the Roman Senate and the Cellar of the Temple of Antoninus and Faustina, the Lupercale and the Circo Massimo.

Italy

By G. GIOVANNONI and P. D'ACHIARDI

THE marvellous continuity of Italian architectural tradition which has endured now for over twenty-seven centuries finds its direct explanation in the continuity of thought and feelings of the race, that is to say in a widely diffused architectural education for which the surviving monuments form concrete elements of record and derivation. But as regards the specific preparation of architects and kindred workers, though there are some examples of institutions having their roots in the past, such as the Art Corporations of the Middle Ages which possibly represented a continuation of the old "Collegia," it could not be really asserted that there is a regular and direct connection such as between the links of a chain.

And, in truth, up to a comparatively recent time there was never a real true unity in the professional figure of an architect and in the methods of teaching him, so that the very title of architect is frequently confused with other titles, and his activity with other artistic or constructive activities.

Already in the Roman period, when the organization of the society and of the technical systems of large constructions was so thorough, such differences and uncertainties began to appear. On the other hand, we have the grand aristocratic figure drawn by Vitruvius, singularly ennobled by the complex of the theoretical and practical notions required from him, which included even the knowledge of music and medicine.

In the early Middle Ages all regular teaching had ceased, and the figure of working architect derived from the carvers or masons predominates over the other.

Nevertheless, the great period of architectural revival which extends from the twelfth to the fourteenth century sees again the reappearance of a true and genuine architect, sometimes chiefly technical, sometimes an artist who cultivates other arts in addition to architecture.

These architects are substantially self-taught, and their artistic and technic manifestations are individual and sometimes completely isolated, which explains the diverse character of the great architectural structures of that time. But the method of study and preparation which unites them is that of the examination of old ruins and the search for the spirit of old architecture, with the object, as Vasari says in the life of Filupo Brunelleschi, "of bringing back to light the good architecture."

The rising of the real figure of architect who leaves now very small part to the individual activity of the artificer, which so predominated in the free organizations of the Middle Ages, and who subordinates to his design the whole conception of the building, creates new conditions of architectural preparation and of setting out for a true profession. Vignole's "Treatise" represents a first step, the teaching in schools a second.

The schools for young architects generally had for their centre and seat academies of art in which, beginning with the fifteenth century, the old corporative tradition reappeared in the most aristocratic form.

With the diffusion of the treatises and with the rising of the schools, the individual activity of the architect, and, therefore, his liberty which had been unlimited in the preceding period, began to be restrained by rules which were very soon codified. It was no longer considered sufficient to teach the practice of the art as in the old schools, but the teaching of æsthetics, that is to say, of the rules of the beautiful, was introduced. And that was the moment of the appearance of the academic teaching which quickly triumphed in the whole of Europe.

Erudition frequently suffocated inspiration. This academic spirit not only caused the disappearance of the beautiful differences characteristic of the different Italian schools, but spread all over Europe, levelling down every nation; and everyone looked to Rome, and artists were sent to Rome which became more and more a cosmopolitan city.

The various tendencies which in architecture are summed up in the Jesuit style, the baroque, the rococo, and the neo-classic, though they are phenomena of a very complicated nature, find their explanation in the various methods and directions of teaching.

Padre Pozzo, who is certainly one of our greatest artists of the eighteenth century, used to say : "He who is a good painter and good at perspective will be a good architect." His work, although criticized by the purists of the neo-classic period, like Milizia, had, however, more particularly through his treatises on perspective, a very great importance in the artistic education of the architects and of the scenographs, which can be compared to that, in the field of scenography, of the Bibienas of Bologna.

And this action spread also beyond the Alps, since Pozzo passed his last years in Vienna, and exercised a very strong influence on the architecture of German Catholic countries. He can be really considered as a means by which the Roman baroque fresh, young, and proud, came into contact with the masters of the north. The whole of the Austrian and Bavarian eighteenth century is derived from Pozzo. But his style, although somewhat heavy when compared with the exquisite grace of Borromini, becomes always more massive and clumsy in the German traditions of his imitators who lack also the noble and severe materials that are available in our countries, which materials played a very great part in the education and in the formation of taste of our architects.

In the seventeenth and eighteenth centuries, the education of Italian architects was generally completed in the academies. The academicians from the earliest times fulfilled the function of intermediaries between the learned and the artists. The architect, like every artist generally, was no longer content to frequent the shop and the studio of a single master, and to have his training and practice with him on any work on which he

may have been engaged, but had to attend lectures of specialized professors in the academies.

Many academies were soon founded abroad in imitation of the Italian academies. Soon, all the architects necessarily had to be trained in academies.

All the architects who studied in the academies were educated in taste for the old. The whole Europe directed, at the end of the eighteenth and beginning of the nineteenth century, the education of architects towards the old.

Even through some oscillations of the next period which were embodied in the successive stages of romantic style, neo-Renaissance and eclecticism, the study of the old always exercised a great and just influence on the methods of teaching in our academies. Nevertheless, it could not satisfy completely the new generations during the rise of an Italy which was getting back its liberty among the European nations. It was understood that in the teaching of architecture it was necessary to guard against the excessively literary influence, and that whilst remaining thoroughly Italian, it was necessary to give a more practical, more living character, to that impetus which comes to us from the classic times, by adapting it to the complex phenomena and exigencies of a new civilization. A new link was thus created in the great chain of time, and a new national character was thus formed, which, though derived from its historical and natural background, was inspired by an entirely new order of study and tendencies.

As Italy was becoming a nation, the Academy of S. Luca (like the other academies) was losing more and more its importance in the field of teaching, as the teaching of architecture as well as of the other arts was taken away from the academy and entrusted to the Institution of Fine Arts of the Kingdom.

The academy was losing that independence, that supremacy which it had formerly enjoyed. It seemed to shut itself into a disdainful isolation and almost to fail in its historic mission which it had carried out in the field of education of the young. Its activity became practically limited to competitions instituted with the legacies of numerous devotees and protectors of the arts, and it is chiefly in that field that it continues to exercise its beneficent action.

We reach thus the modern period in which the education of Italian architects is chiefly carried on in State institutions and to which we will refer in our next paper.

America

By PROFESSOR WM. A. BORING, Columbia University

THE history of architecture in America does not reach back to an illustrious past, crowded with historical associations of the great periods of art which flourished in Europe. When other countries were building luxurious monuments of art, the beginners of the American Republic were building log cabins for protection against the elements, and surrounding them with stockades of tree trunks to save them from the arrows of the redskins.

Our first buildings with any claim to beauty were modestly copied from good English and Dutch examples modified to suit the climate, and confined to that simplicity which our limited resources demanded; a style was thus worked out which reflected the Renaissance with a pronounced meagreness in detail, but with great refinement and a delicate sense of proportion withal.

Several accomplished English architects who came over with the colonists in the early period left good traditions in design, particularly in respect of the better class of homes for the prosperous colonists. Our domestic style now known as Colonial, the result of these conditions, is the only indigenous expression of beauty in architecture we have for a background.

This style prevailed until half a century after America became independent. Then, following the general decline of art in Europe, our architecture went from bad to worse, culminating in that frightful period, the Civil War of 1861–1865.

After twenty years the scars of war were healing, business recovery was well under way, and as the country prospered there were signs of awakening attention to architecture. Our first expression of concerted effort in architecture was the exposition buildings for the centennial celebration at Philadelphia in 1876, to which the whole world was invited.

The ideas of art and architecture, which on this occasion came to us through the exhibitors from Europe, gave us our first great awakening in art.

English domestic architecture was at that time interested in what we remember as Eastlake style. A fresh note of novelty, honesty, and homeliness in it made it popular with us; and it had a pronounced effect on the design of dwelling-houses. English architectural publications of that period, which were much studied by practitioners in America, gave a distinct trend to our domestic work; and I may say that home building was the most important expression of architecture in America.

In Boston, which has always been active in intellectual and art matters, a school of architecture was founded in 1865 which, it appears, was the first academic school of architecture in any Anglo-Saxon country.

William Robert Ware established in the Massachusetts Institute of Technology the mother school upon which all others have been more or less modelled. He set a high standard of general scholarship as the requisite intellectual equipment necessary for the study of architecture. Analysis of the monuments of the past and the cultures which produced them, together with the science of building, formed the basis of the instruction.

Later there was grafted on to this stock the system of teaching design which has been followed with conspicuous success for two hundred years at the École des Beaux-Arts.

Unlike the instruction in other subjects which are studied in groups, the teaching of design seems to depend upon individual and sympathetic personal guidance. It might well be likened to the Apostolic succession in which the transmittance of divine fire is accomplished in the laying on of hands by the Master.

Monsieur Eugene Letang, a most inspiring teacher, came to us in 1869, and aroused that enthusiasm in design which is essential in the study of architecture. The Massachusetts Institute of Technology soon became a successful school. About this time many students went to the École des Beaux-Arts in Paris, where the Government of France offered them that hospitality and instruction which have so strongly bound these two countries together in sympathy and in art.

In 1881 William R. Ware was called to New York, where he founded the School of Architecture in Columbia University. Other schools followed throughout the land in response to the public demand for architects, and to-day there are two or three score of good schools located in the principal educational centres, with students numbering from four to five thousand, pursuing systemized studies in architecture.

In 1894 the Americans who had been students at the École des Beaux-Arts formed a society to perpetuate the principles taught them at that great seat of learning and inspiration. Being the first president of the Society of Beaux-Arts Architects I can well remember the small but courageous beginnings of that little group, now grown to the large and prosperous society which supports the Beaux-Arts Institute of Design, whose activities in architectural education my colleague Mr. Emerson will describe.

Beside the schools there were established private ateliers organized like those in Paris, and presided over by brilliant young architects who were engaged in private practice but who were so fired with enthusiasm that they spent their evenings over the drawing board with their students.

The world Columbian Exposition at Chicago, 1893, was the second step in general appreciation of architecture by the American public. A group of distinguished architects, painters, and sculptors working in co-operation produced a dream city looking out on the blue water of Lake Michigan which aroused eager enthusiasm for the monumental classic. From his experience working with these artists, Mr. Charles Follen McKim conceived the idea of an American Academy in Rome for the study of architecture, painting, and sculpture by groups of young artists of proven ability and attainment. America sustained his efforts by liberal contributions, and we now have a beautiful place in Rome with architects, painters, sculptors, composers of music, and classicists who are helping to cultivate appreciation of beauty, and a standard of good taste for monumental expression in architecture and the arts which compose it.

The Association of Collegiate Schools of Architecture, of which Mr. Emerson is now president, was recently formed to improve the teaching of this subject by standardizing the instruction in fundamentals. It is composed of the leading schools of architecture in America, who maintain a standard of scholarship and excellence in design. Each year the convention of the Association is an open forum for discussion by all who are interested in the subject of architectural education. The younger schools are admitted to membership when they attain the required standard of teaching.

England

By PAUL WATERHOUSE, M.A., F.S.A., PP.R.I.B.A.

TO go back in time. How little we know of the training of the great men of even the seventeenth century! The giant Wren is of no use to us as a historical evidence. In architecture, as in other aspects of his remarkable life, he was his own disciple.

Between Wotton in Elizabeth's time and Dean Aldrich in Anne's, we may imagine a chain of unprofessional *conoscenti* to whom an intelligent interest in classic architecture was even commoner than a smattering of half-forgotten fourth-form Latin is among the country gentlemen of to-day.

With the eighteenth century—and, indeed, with Wren, Gibbs, and Inigo Jones—there came in, what is an intensely important factor, the belief that without some study of classic and Renaissance art on Greek, Roman, Italian, or French soil no architect could be completely equipped. In saying this we have to assert that during half the seventeenth and all the eighteenth centuries foreign travel and foreign study were an essential in the training of the polite architect. How could it be otherwise, and how, again, could it fail to be the case that the immense vigour displayed during the nineteenth century in reproducing by engraving, and later by photography, the works of non-Britannic architecture should have enabled men, to whom extensive foreign travel was impossible, to make themselves masters of the work of other countries and of far distant dates?

Inigo Jones, as we know, went to Italy and France for the study of landscape painting; he returned complete with the panoply of a classic architect. Wren, after being plunged almost unexpectedly into the responsibility of architecture, took a well-timed and a well-employed rush to Paris.

Take with me a look at Sir William Chambers, an acknowledged giant. How was he trained? At sixteen he, so to speak, ran away to sea, and for two years he lived a rather menial sailor's life, tempered, it is true, by a tendency to sketch Chinese architecture. This tempering and this tendency led him to realize his vocation, and his next outbreak was in the direction of Italy—to study architecture.

If anything in the life of a Scot were ever accidental I should describe the beginning of James Gibbs as singularly blessed by the chances of fortune. After taking his degree at the Marichal College at Aberdeen he lost his parents and sought his fortune abroad. Holland was the country chosen. In Holland, naturally, he finds a countryman, no less a person than John Erskine, Earl of Mar, who sends him with money and introductions to the great Fontana at Rome. Thus was Gibbs provided with the equipment of which he made such brilliant use.

Sir William Tite, to take an example not essentially gigantesque from among the presidents of the Royal Institute of British Architects, was, as regards his training, more nearly of the pupilage type. He was articled to D. Laing, the architect of the Custom House. His journey to Italy came apparently after being long deferred, when a serious illness at the age of fifty-three induced him to give up architecture in favour of a career as a member of Parliament, a director of a City bank, and a magistrate in two counties.

Of Sir John Soane as a factor in architectural education I can only speak with the highest respect.

A glance at the very interesting monograph on the subject of his office as a pupil-room, compiled by my friend, Mr. Arthur Bolton, shows us to the full how intensive was the training then afforded.

Between the years 1784 and 1837 no less than fifty-five men passed through his atelier in one capacity or another. Thirty of these were genuine pupils; the rest were assistants or improvers.

The greatest of them were, I suppose, Basevi, the architect of the Fitzwilliam Museum at Cambridge; Gandy, an assistant, who became A.R.A.; and D. Laing, who, as before mentioned, was Tite's instructor.

Soane himself had no special chances in education. It was as an office boy that he went to Dance the younger, and he subsequently entered, presumably as an assistant, the office of Henry Holland, where he stayed till he was twenty-three. Holland deserves to be better remembered than he is.

Soane gave his pupils plenty of practical work, including surveying, measuring, costing, and superintendence, as well as the making of working drawings. But he also, it is clear, established a brilliant academy of fine draughtsmanship.

Probably, with about three possible exceptions, no architect since his time has ever provided in his own office—and that a busy office—such a complete or refined education for pupils.

I have mentioned Soane's work as a teacher and lecturer at the Royal Academy; the Royal Academy itself must not be forgotten as a factor in the general movement towards architectural training.

What pupilage was in the days of Queen Victoria most of us know by tradition, repute or experience. That it differed enormously between office and office there can be no doubt. That in some cases it was a farce is, I am afraid, true; that in many it was a very glorious discipleship is equally and honourably true. In all cases the amount of learning to be gained from it must have varied not only with the character of the master, but also with the opportunities which the master's clients provided. If a leisured office gave the master the best opportunity of individual teaching, a busy office probably afforded, by the brisk friction of stirring practice, the most animated encouragement.

Be that as it may, we have amongst us at this time survivors of the Victorian training whose work and whose character testify to the force of those training grounds not less clearly than do their spoken reminiscences of the great men of our fathers' time.

If I have not spoken of the establishment of the examination system of our Royal Institute it is not because I ignore its importance, but for the simpler reason that I regard it not so much as a portion of the past but rather as the birth of the present.

What the Institute did at the close of the last century in setting up first the tentative voluntary examination, next the obligatory, and finally the three-fold system was nothing more or less than to force and to foster the bands of the new race of educators.

The parallel growth of the Architectural Association as a teaching body and the gradually increasing efficiency of the classes under professional guidance at University College, King's College, and South Kensington worked together for good in the same direction and became with one other force the irresistible origins of our present system.

The Discussion

The above papers on "Architectural Education of the Past" were read before the Congress on Tuesday last week, Lord Crawford occupying the chair. At the close of the papers, the chairman called upon Monsieur Victor Horta, of the Académie Royale de Belgique, to open the discussion. Monsieur Horta addressed the Congress in French upon the systems of teaching in Belgium.

Professor Beresford Pite, who followed, said that the review of the past had not really gone beyond the Renaissance. We were still actually in that period to-day. Their methods of thought and habits of work were those of their Renaissance ancestors.

They were just beginning to appreciate to a fuller the marvels degree of Egyptian art. In the East there were other fields of architecture and art scarcely yet explored and understood. Let them, as a congress, seek to widen their outlook and not confine it to the academic traditions of Renaissance architecture or to the sphere of modern architectural practice. The great architects of the ancient world were not the product of any school, but of an era, their work the representation of national life. Their creations embodied sentiments, chiefly religious, which were excluded from the architect's education to-day. It was only when they came to the Renaissance, with its pettifogging stupidness and artificiality, to the imitative aspect of architectural art that they were able to create a system of study and to make this vast and mysterious art which once flowered over the whole surface of civilization the subject of an academy and a degree.

Mr. Robert Boker (Russia) and Professor Anoni (Milan) also took part in the discussion.

Closing the session, Lord Crawford said there was one point of view that every speaker had endorsed, and that was that in the past the relation between the architect and his work was intimate and continuous, that he was familiar with the process of construction and the materials he employed, and the best method of handling them—in short, with the workmanship of which he was the artist. He believed that architecture would never do complete justice to itself if the architect were divorced from the actual handling of the material on which the result of his conception must be imposed.

2.—Architectural Education in the Present

France

By A. DEFRASSE

THE teaching of architecture in France is centralized in the "École Nationale Supérieur des Beaux-Arts" of Paris : Regional schools of architecture exist in the chief towns, such as Lille, Rouen, Rennes, Lyons, Marseilles, and Strasbourg, but these schools are themselves part of the school in Paris, the programmes being the same and the competitions being executed simultaneously in all the centres of training.

The designs are sent to Paris, for judgment (under the condition of strict anonymity), at the same time as those executed in the capital : then, after the exhibition in the Salle Melpomène of the École des Beaux-Arts, the best of the designs which have obtained awards are exhibited in the various provincial schools.

The course for study in architecture is a long one and comprises four distinct cycles : the entrance examination (admission) ; the second class; the first class; and, finally, the big prize competitions. There are few cases of any student being able to complete all these stages in less than five years.

All the big "Ateliers" and the special "Ateliers" prepare students for the tests which form the entrance examination, which comprise : a test—architectural composition in twelve hours, a drawing test and a test in modelling, each of eight hours' duration ; then a written examination in mathematics, a test in descriptive geometry, an oral examination in science, and another in the history of art.

The examination is a stiff one : two successive eliminations weed out the candidates, of whom the number is reduced to sixty, fifteen being foreigners, from a total of about 450 candidates.

Students of the provincial schools also take part in this competitive examination and the last to be admitted must have gained a number of marks equal to the last candidate to be admitted to the school in Paris.

The tests in science and mathematics correspond to the "Baccalauréat de Mathématique de l'Enseignement Secondaire."

The student admitted in the second class after having negotiated the tests of the entrance examination, must, before passing to the first class, successfully pass a further set of examinations in science, descriptive geometry, algebra, statics, stereotomy, perspective and construction, and obtain at least six "mentions" in tests of architectural composition, for each of which two months is allowed. The course in construction, which lasts for one year, is the object of the undivided attention of an eminent professor, Monsieur Arnaud, who has been able to render the peculiar difficulties of his lectures attractive by cinematograph and lantern views comprising all the figures of demonstrations and numerous examples taken from ancient buildings and modern construction.

In the first class, save for an examination in physics and chemistry, and another on building laws and regulations, both of which are necessary before the diploma can be obtained, students do nothing but competitions in architectural composition, each lasting two months, on programmes of architecture and decorative elements. Medals and "mentions" are awarded to the best designs : the unit being a "mention"; ten "mentions" are required by the student to take part in the test for the diploma which concludes the course for architectural training.

Students, however, remain on the register of the École des Beaux-Arts, and may compete in the "grands concours" until they reach the age limit, which was thirty before the war and which will be progressively reduced to twenty-seven years.

These "grands concours" are those which have money prizes attached to them, resulting from legacies or foundations left for this purpose—in some the students themselves may select the subject—and include the "Grand Prix de Rome," which has been in existence for over two hundred years; this competition gives the winner of the first prize the right to a stay of four years at Rome, with archæological journeys to ancient Greece, the Orient, and the colonies of the old Roman Empire.

The second part of my survey in which I shall endeavour to set out the result of the training given at the "École Nationale Supérieur des Beaux-Arts," is certainly the most interesting; but how difficult, because a sincere or attentive observer must note that a spirit of unrest prevails, a state of crisis is manifesting itself in the teaching of architecture.

Two currents of opinion, very distinctly divergent, exist in educated minds ; some think that the rules of harmony are immutable, that the beautiful proportions which we have inherited from the classic period and which were renewed with the Renaissance, that the proportion of parts and forms are already found, and that the artist should find the expression of his personality within the framework defined by a healthy traditional style, the sure guide of good taste.

Others consider that the use of new materials should modify the ancient forms and proportions, that the precursory signs of an architectural revival, of a new style, as they say, are showing themselves, and they revolt against the notions resulting from tradition ; no more scholarly schemes for them, form should simply result from calculations and scientific facts.

If we examine carefully what is occurring in other branches of intellectual activity, what do we see ? The great inventions of the early years of this century are modifying our existence completely, right down to its least manifestations.

To these new possibilities there correspond new needs : each day programmes rise before us, of which even the conception could not have been considered a few years back.

These programmes, or at least those which have a special interest for us, those which have to be translated into architectural forms, demand a solution. Who, then, will give them expression ?

Will their realization be solely the work of the engineer, exact and precise, brains necessary to the elaboration of all scientific works ? Will these forms be merely the product of a cold logic and of mathematical accuracy ? Will they have nothing which "speaks to the eye ?" Will they merely be true without being beautiful ?

In the days of our youth, the horse which carried us was exhausted when he had travelled thirty kilometres : to-day a flying machine goes a thousand kilometres without a halt and can then continue its flight. A beam did not exceed ten metres' span, a roof truss thirty-five metres; to-day the bridge over the Elorn, in construction near Brest, has only two intermediate piers in a total span of 850 metres.

In this evolution which is taking place, which some regret, perhaps, which others encourage—what is the part of the professors of the École des Beaux-Arts, and what is their rôle ?

Their first care is to be alert to the realities of the hour : they must not encroach or dominate over the personality of their students, but they must be their reliable guides, no matter what may be the tendencies which distinguish them, whether these incline towards the past or whether they direct towards the problems of the future.

The professor must therefore be eclectic in his teaching of architectural composition, he must welcome with impartiality both tendencies, which join sooner or later, and he cannot make a mistake if he bases his advice on logic, on the severe criticism of notions which are not based on an irreproachable reasoning.

Italy

By GUSTAVE GIOVANNONI

THE attempts to give a full and complete unity to architectural studies and to the title of architect have been very numerous during the last fifty years. Special sections for architectural students were founded at the polytechnic schools, among which the flourishing Polytechnic School, Milan, still has a great importance on account of its organic system of teaching and of a large number of students. They culminated finally in the recent foundation of the High School of Architecture in Rome, by the decree of October, 1919, and this school has become the central organ for architectural teaching and for conferring the title of architect.

The High School of Architecture in Rome is a university, for admission to which it is necessary to have general knowledge similar to that of public schools, together with an artistic training similar to that of the ordinary courses of the institutes of fine arts ; such training must be proved either by official certificates of study, or by admission examinations. The course takes five years, and the studies are of scientific, artistic,

and professional character, that is to say, arranged so as to cultivate progressively the mind and the feeling for art.

In other works, this system aims at forming a complete architect for whom art should not be an abstraction but should be expressed in concrete positive subjects, and science should not become an arid practice of expedients and forms. And in that way has been overcome the prejudice of incompatibility between the two orders of study, by the re-assertion that the aptitude for the exercise of the profession of architect can only be found in those who can understand and harmonize both.

The nature and the logical series of the teaching given in the said school, will appear from the following table :—

LIST AND HOURS OF SUBJECTS TAUGHT AT THE ROYAL HIGH SCHOOL OF ARCHITECTURE.

	Lectures. Hours.	Exercises. Hours.
FIRST YEAR.		
Mathematics (algebra, differential calculus)	3	1
Analytic and descriptive geometry	3	2
Ornament and figure	–	8
History of art	2	–
Visits to Monuments and Museums	–	3
Architecture :		
(*a*) History of architecture and architectural styles	2	3
(*b*) Elements of architectural composition and drawing	2	10
(*c*) Building elements	2	3
Total	14	30
SECOND YEAR.		
Chemistry and technology of building materials	3	–
Pure mechanics	3	1
Mineralogy and geology	2	–
Applied decoration	–	8
Architecture :		
(*a*) History of architecture and architectural styles	3	6
(*b*) Architectural composition	–	7
(*c*) Surveying and restoration of monuments	–	5
History of art	2	–
Total	13	27
THIRD YEAR.		
Science of building	3	2
Topography and road construction	2	3
Hygiene	1	–
Experimental and technical physics	2	2
Applied decoration	1	5
Ornamental plastics	–	3
Architecture :		
(*a*) Characters of buildings	3	–
(*b*) Architectural composition	–	10
(*c*) Survey and restoration of monuments	2	3
Total	14	28
FOURTH YEAR.		
Building design	–	3
Applied hydraulics and various installations	2	3
Legal and economic matters	3	–
Perspective and scenography *	1	5
Ornamental plastics	–	3
Architecture :		
(*a*) Technical and professional architecture	2	–
(*b*) Architectural composition	2	10
(*c*) Arrangement and interior decoration	2	4
Total	12	28

* *Scenografia* means scene-painting, also perspective, also the art of drawing elevation of buildings (Translator).

	Lectures. Hours.	Exercises. Hours.
FIFTH YEAR.		
Building and garden planning	2	2
Architecture :		
(*a*) Technical professional architecture	2	–
(*b*) Composition	2	16
(*c*) Arrangement and interior decoration	2	10
Scenography	1	5
Lectures	–	–
Total	9	33

SPECIAL COURSE OF STUDY OF THE MONUMENTS AT THE HIGH SCHOOL OF ARCHITECTURE.

LIST AND HOURS OF SUBJECTS.

	Lessons. Hours.	Exercises. Hours.
Historical, technical, and artistic study of monuments	3	3
Archæological notions and technique of excavations	2	2
Survey and restoration of monuments	1	10
Lectures and exercises in special subjects	1	1
Total	7	16

Coming back to the organization of the High School of Architecture in Rome, it is necessary to mention briefly the special course for the study of monuments which now begins to function as a branch of the school itself. The object of this special course is to develop analytical study of history, technique and art of monuments, systems of restoring them, archæological methods pertaining to architecture; it is destined to become a centre of culture where architects would meet archæologists and historians of art, to constitute, so to say, a workshop for research in assistance to the serious problem of restoration of ancient monuments and excavations, and to prepare in that way a qualified technical and artistic staff to whom the State could entrust the task of preserving the nation's artistic capital. Its foundation has signified the transfer to architects of the study and care of the monuments which is now frequently in the hands of other people who lack the necessary technical and artistic preparation.

This is briefly the organization and the working of the High School of Architecture of Rome which has now been in existence for four years. And not very dissimilar are the studies in the section for architects of the Polytechnic of Milan and of other somewhat embryonal sections of other polytechnics. The number of students in the said school of Rome amounted this year to about 150, and that in the Architectural section of the Polytechnic of Milan to about 60.

America

By PROFESSOR D. W. EMERSON, Massachusetts Institute of Technology

CHRONOLOGICALLY the schools were first in the educational field and are, therefore, entitled to first place in any analysis of present-day methods. Needless to state, these methods have resulted from the conditions and influences indicated in Professor Boring's admirable paper on the Past, and the consequences of these same conditions find their expression in the student of to-day.

In brief, our major effort is being directed toward :—

1. The teaching of fundamental principles rather than the study of countless details.

2. The teaching of the orders and elements of architecture in their normal relation to structures rather than as isolated features.

3. The producing of programmes that are illustrative of modern problems in our own country based upon intrinsically sound principles of composition in plan and decoration.

4. The adaptation to our local conditions of the atelier system and with it of that logical procedure in the study of design, for both of which we are indebted to the École des Beaux-Arts in Paris; and finally,

5. The co-ordination of out teaching whether it be of history, construction, drawing or modelling so that each and all unite in emphasizing the transcendent value of design as the keystone in our arch of architectural education.

The effort indicated under these five headings is obviously directed toward the achievement of that major objective. The more general recognition of architecture as a profession, for the practice of which adequate preparation is essential, stated above, and all five are correspondingly applicable to those three groups of students whose education constitutes our problem.

The need of the first group, the high school graduate, for a broader background, a wider acquaintance with the humanities, including those cultural studies so essential to an understanding of modern conditions, is already recognized in some of our schools by the addition of one year to the four years hitherto considered the standard course. The resulting five-year course meets the need indicated above as well as ensuring that greater maturity of mind and judgment in the graduating student that is so essential to an adequate grasp of his subjects. It condenses into five years spent in one institution what is generally obtained in six, by a combination of academic and professional requirements in two institutions.

In considering the second group composed of holders of the degree of Bachelor of Arts; while we may admit that the high-school graduate, on account of his greater youth, comes to his professional studies at a more adaptable and impressionable age than is the case with the college graduate, still the latter has in all probability used his added years to acquire a more useful acquaintance with the humanities and has thus secured a broader foundation for his professional work as well as a more mature appreciation of the significance of the name architect. Hence, for the members of this second group a period of three years is generally sufficient to bring them to a state of advancement, from a professional standpoint, equivalent to that acquired by the members of the first group in five years.

To the third group, composed largely of draughtsmen, whose studies ceased with high-school, all of the schools offer varying facilities for completing their professional training on the basis of the office experience previously acquired. Unless these students make unusual sacrifices and meet the standards required of regular students they are never candidates for the degree, but because of their long office experience and earnestness of purpose they form a valuable element in every student group.

It was in particular to meet the needs of this third group that the Beaux-Arts Institute of Design was organized. Its original members were a mere handful of Americans, former students at the École des Beaux-Arts in Paris, who, appreciating the service that they had there received, recognized the help that they in turn might give to ambitious draughtsmen at home by organizing ateliers throughout the United States where the free time of these valuable men could be utilized for their own advancement as well as for the future good of the profession. And now, so truly has the Beaux-Arts idea of atelier work won its way in America that, without exaggeration, the architectural schools of the country might be classed as ateliers of this greater and more comprehensive effort.

With such a description before you of the chief features in our educational programme, you may well ask: How do your students become acquainted with the great architecture of the past? In so asking, you would touch upon, perhaps, the greatest handicap under which we labour. The need for acquaintance with the monuments of Europe through personal knowledge rather than through books and photographs was recognized, as Professor Boring has told you, with the creation of our first school of architecture. A new country such as ours, with nothing that could, by the most generous, be called architecture dating back more than 250 years, needs contact with the past. To this end travelling scholarships have been created and now exist in fifteen or more of our best schools. In addition, there are half a dozen more, that are privately endowed. These all ensure for the most promising students anywhere from six months to two years of travel and study in France, Italy, England, Greece or Spain as conditions may indicate. So that every year sees twenty or more of the best product of our schools and ateliers turning their faces for the first time toward the discovery of the old world.

Thanks to the increasingly well-equipped libraries and collections of photographs that each school is strenuously accumulating, the need for long study in foreign schools is much less imperative than it was twenty-five years ago. In consequence, our scholarship holders spend their time for the most part in travelling, measuring, sketching, and thus acquiring together with much of architectural value, an understanding and appreciation of the relative values of life that are most salutary for my strenuous, hustling countrymen.

The travelling scholarship may be said to complete the educational opportunity of that hopeful youth to whom I introduced you some time since, and whom you have seen in the school or atelier availing himself of its opportunities to grasp the great underlying principles of architectural composition, discovering thus the solution of those problems that are peculiar to our time and country, and thereby acquiring such an educational equipment as will enable him to place the practice of architecture in the very forefront of the professional field.

England

By W. CURTIS GREEN, A.R.A., F.R.I.B.A.

THE present is a time of extraordinary interest and of development in architectural education; forces are at work, which, as the younger men come into their own, will profoundly affect our thought and achievement. I do not wish to be misunderstood; I do not predict super-architects. It is impossible to conceive higher ideals than those that have been borne aloft by our forebears, or than those held by the leaders that we are proud to follow to-day. I do not anticipate greater achievement than theirs. What I foresee is that for which the professors and masters in the schools are working, fostered and helped by the Board of Architectural Education—namely, the raising of the general standard and general understanding of architecture.

The new factor in the situation is the school of architecture either attached to a university, a school of art, or independent of either.

There are at the present time seven such schools having a full five years' course of study, the later years combining some office training; the completion of the course to the satisfaction of the school authorities and of the Institute, who are represented by two external examiners, together with the passing of an examination in professional practice, gives the student exemption from the Institute examinations, and he becomes an Associate of the Institute. There are sixteen schools with exemption from the Institute intermediate examination. The number of students recently in the schools were: First year, 189; second year, 217; third year, 131; fourth year, 99; fifth year, 50—a total of 686. These schools are situated at the great centres of population and are gradually covering not only the British Isles, but the dominions overseas. They are new, and they are young. They show the qualities of their condition, but they have, I believe, come to stay.

There are architects who object to the schools: some because they do not understand what they are doing and object to a jargon which has unfortunately been adopted in some few schools when the use of the King's English would have aroused no feeling; others, and these must receive serious consideration, because they regard the schools as too bookish and too theoretic; a few because the old system of apprenticeship was a pleasant source of income and comfort, and because they do not turn out immediately useful assistants. There was a time when young men left the schools with an exaggerated view of their attainments and value. They obtained a good salary and were found useless for the work for which they were paid. That, I believe, is becoming a thing of the past. A boy entering an office for the first time, unless he is engaged on the preparation of competitive drawings, realizes that he is a new boy making a new beginning, his first duty being to get his master's ideas into material shape through the medium of the drawing board, a duty requiring accuracy and patience. On the other hand, the principal is finding that at the end of a year or six months such an assistant is more useful and has a greater grasp of the content and meaning of architecture than has the office-trained man.

In the early impressionable years of a boy's training and development there is, in my mind, no question of where the balance of advantage lies. In the one case he enters an office where he can take no useful part, nor is he capable of understanding the activities or interests of his fellows.

In the other he enters a great school perhaps with ten, twenty, thirty or forty other freshmen. He is set to work with them in an ordered sequence of study, with a mind unconfused by factors and values relevant only to the practising architect's office. He has the healthy competition of students of the same year. The elements of draughtsmanship, design, construction, and history follow in an orderly procession, properly correlated and developed so that he may seize on their meaning and purpose. The strength of the schools lies chiefly in the method of teaching; in the personnel of the staff, who are mostly young and enthusiastic men, all of whom are actively engaged in private practice; and in the fellowship of the students of the same and of the senior years.

The Discussion

Sir Reginald Blomfield, R.A., PP.R.I.B.A., presided over the Wednesday morning session. Following the reading of the above papers, he called upon Professor Richardson to open the discussion. The Professor strongly criticized modern tendencies in training, and said that the training in design, as at present constituted, was far too ambitious. The sum total of architectural training should be devoted to the making of master-builders, who were also artists, and, in some measure, scientists. The desire for novelty was leading to a "paper" tradition, and the weakness of the present system was that it was the making of draughtsmen and not the training of architects. There was a good deal of make-believe. The way to revivify the art and encourage the modern form of building was to concentrate on planning.

Professor Beresford Pite urged that architects should clear their minds of the cant of imitation and the superficialities of antique reproduction. After an age of copying antique forms in stucco we had now come to reproducing them in stone imposed upon steel work, a method unknown to antiquity.

Mr. Percy L. Marks protested against the remarks by Mr. Curtis Green on the apprenticeship system. He really thought it a most undeserved slur upon many respectable architects.

Among others who took part in the discussion were Professor H. K. Stabell (Norway), Mr. C. B. Howdill (Huddersfield), Mr. T. P. Bennett, Professor Anoni (Milan), Mr. Howard Robertson, and Mr. Martin Shaw Briggs.

The chairman, closing the session, said that though the school system had answered extremely well on the whole in England, it had its weak points. Students tended to adopt mannerisms, and not enough attention was paid to the past. It was a disadvantage also that the staff must almost inevitably be young men, without much practical knowledge and experience.

3.—Architectural Education in the Future

France

By M. LEON JAUSSELY, Professor "École Nationale Supérieure des Beaux Arts"

WHATEVER opinion we may hold of the present evolution of architecture, it is undeniable that the said evolution does exist, and that we are witnessing at present, conscious or unconscious, attempts to renew architectural forms and æsthetics.

This renewal is more particularly noticeable in large constructions: large stores, bridges, churches, banks, cinemas, railway stations, airship sheds, etc., which we can consider as the expression of the monumental architecture of our times, and which logically should be compared with that of other epochs in order to understand the meaning of this architectural transformation.

In this short report it would be impossible to go into a detailed analysis of the causes of the evolution in question, they are mostly due—like in all the characteristic periods of architecture—to a rational utilization of building materials as well as to the evolution of modern life; quickened life, development of machinery, economy, standardization, requirements of sanitation, practical orientation, and the consequent new habits.

Iron and cement and their compound—reinforced concrete—have rendered possible, owing to their elasticity and greater strength, a constantly increasing development of what must be considered the most important characteristic of modern architecture; considerable increase in horizontal spans in contrast with the reduction of thickness of the vertical supporting pillars or piers, spiritualization of forms by the maximum utilization of the strength of the materials. The proportions are the reverse of the former proportions; formerly, heavy columns or piers, narrow spans; at present, considerable spans with small piers. For very large spans, the use of parabolic arcs is practically universal; it seems relatively to belong more to the art of an engineer.

In modern architecture, the architects in general have not regarded these chief materials as noble materials, and have exercised their ingenuity to hide them when it was question of a really architectural work. The reinforced concrete was covered with mosaics (rational), or with stone or marble facings (irrational), so that in the latter case the facing thus produced frequently gives the buildings the appearance of precariousness which they have not got in reality, and of bad utilization of the apparent building materials.

The new æsthetics which are derived from these materials, are, therefore, indicated first of all by the reversal of proportions and stressed by pronounced contrast between vertical and horizontal lines without any softening of line and form, of transition or passage from one to another. The arch has been almost completely abandoned. It may be said that these æsthetics are rather crude, arbitrary, and intentionally unpleasing.

Their influence has been felt also in the architectural æsthetics of the materials formerly used, such as stone, brick, wood; horizontal lines predominate, curves are more and more avoided, opposition between vertical and horizontal is universal.

These new æsthetics are further characterized by the simplification of the membering and its reduction to a small number of elements, the search for the enveloping form and general colour, in place of detailed moulding; the decorative points are elaborate, and even precious, but very sparsely distributed and stand out from a bare background; the appreciation of volumes and masses is exact, the outlines are severe, the sobriety of these æsthetics excludes all mannerism.

Let us recapitulate: simple composition and lines, of a real and severe classicism, but with different and reversed proportions; sober architectural "décor," the ornament has style or is archaic, the facing materials are rich, even precious or appearing such.

A new direction seems to have been struck which can only become still more pronounced.

It is a pity that constructive frankness of form is reserved chiefly to the interior parts, and that external decoration of the façades mostly does not correspond to it.

As particularly successful modern architectural works, must be considered those engineering works of great frankness where the whole remarkable appearance is due to the effect and to the combination of pure constructive forms without any ornament.

Does this new orientation demand a new teaching of architecture?

It seems that it must be so. But first of all let us recognize the elements which still remain true, at least in France, in the traditional teaching of our school which was discussed before you yesterday by my colleague Defrasse, and the origins of which were explained to you by Mr. Paul Léon, Director of Fine Arts. We do not feel that this teaching is opposed to the efforts of modern evolution.

1. The problems which the architect is more and more called upon to face, are constructive problems of always increasing audacity, difficulty, and complexity. This must lead the architect to become more and more a constructor, not in the narrow professional sense, but in the highest sense, bearing in mind that the architect must be in a position to solve architecturally any exceptional and most important constructive problems that may occur.

He can no longer be simply an artist who, as is the case still to-day, conceives merely the decoration, the clothing of the forms supplied to him by the calculations of the engineers; he must himself imagine the said forms in their complete logic and rationality, construction and decoration being the product of one and the same brain. It seems to me that that is the capital point of the future teaching of architecture (it is necessary to point out the contradictions in the Alexandre III Bridge and the Bridge de la Tournelle now being reconstructed in Paris; the constructive forms have been designed by the engineers, the decorative facing and the dressing have been designed by the architects subsequently).

The beginners should be besides taught, at the very commencement of the study of architecture, to consider all the forms of the history of architecture of the great periods, Classical or Gothic, as chiefly constructive forms—which they were—and shown that the decoration merely brought them out, and that instead of covering everything, the decoration was sparsely and very judiciously distributed to suit the constructive form. That is the great lesson taught by the fine periods of architecture.

The evolution and the progress of architecture are in the fusion of the two spirits at present sharply distinct: the constructive spirit and the decorative spirit.

Seen from that higher point of view, the teaching of the construction, that of the history of architecture and of the theory of architecture become capital points.

From the first, all teaching must be directed by a study of the rationality of the forms of the past and a logical conception of modern forms.

2. Another important point of view in teaching is that of the conception of the building or of the construction, considered as being situated in a generally harmonizing environment. In teaching, attention has been chiefly given to the æsthetics of the work itself, but the pupils should be shown the value of the general harmony—natural or human—in which the buildings are to be erected, and the necessity of adapting the work to be built so as to ensure that harmony.

In that sense, and without insisting on the importance of the teaching of "urbanism" from its purely technical and practical points of view, the teaching of the history of architectural urbanism is of the highest importance and should not be neglected, but should form part of the general teaching of architecture.

We do not think this is the place for going into detailed practical appreciation of the teaching of architecture, and programme of lessons of all kinds in pure art or professional practice.

We restrict ourselves to the two points already mentioned, which seem to us the most essential and most likely to have in the future the greatest results in favour of the art of architecture which, like our habits, is in the course of evolution.

Italy

By GUSTAVO GIOVANNONI

IN the paper on the present conditions of architectural education in Italy mention has already been made not only of the aspirations and tendencies, but also of the beginnings of an organization looking towards the future. The

present in this field is not considered from static points of view but as a first stage on a road to be still travelled, in which the glory of the architectural past will not only serve as a beacon but also give a concrete orientation.

A great advance has been already made in the work for bringing into existence in Venice and Florence, schools similar to the High School of Architecture in Rome, and for extending the section for architects at the Polytechnic of Milan. Thus in the more important traditional artistic centres of Italy and in that which is the heart of its financial and industrial activity, will spring up in time these institutes of study devoted to the training of architects. It will be necessary, however, to provide subsequently a school in the south of Italy, perhaps in Naples, where is to be found the inheritance of an important architectural tradition extending from the Greek monuments to the eighteenth century.

Italy is thus proceeding to carry out a conception similar to that followed by France when it founded about twenty years ago the regional schools by the side of the old École Centrale d'Architecture in Paris. Whilst preserving organic unity of the type of instruction in such schools, it seems advisable to allow in them a certain variety in the direction of art, both as regards the study of the subjects (different in a centre of industry and in a centre of monuments) and the study and inspiration of the regional forms.

Turning from this outline of a future programme to exact contingent application, it is necessary to mention two provisions which are about to be made, which are likely to have the greatest influence on the architectural education and on the position of architects in modern Italian life. They are both the work of Prof. Gentile, Minister of Public Instruction, the eminent philosopher who has initiated in all the branches of instruction an audacious and organic reform which will partly endure in spite of changes of regulations and of Ministers.

The first of these innovations is the introduction for the profession of architect of a State examination required for qualification, which is quite distinct from the "laurea" (leaving certificate) which represents the end of the official study. A régime is thus created which may be said to be half-way between the Anglo-Saxon and that which is in force in nearly all the other European countries, that is to say, demanding attendance at the lectures of higher State schools, but leaving a relative freedom of regulations and preparation to which unity will be given by the State examination.

Thus more particularly civil engineers will also be allowed to undergo the State examination for architecture; but the examination itself will have to prove their full qualification in the field of art, in historico-artistic culture and their knowledge of the special architectural problems.

The State examination will have to be passed one year after the "laurea" diploma has been obtained, and in that year the candidate will have to complete on his own account a practical training in building yards or in architects' offices so as to get in the meantime concrete technical preparation; he will have to prove it by special reports which should not be merely a "curriculum vitæ," but give an analytic and methodical description of the constructional works seen, of the plans and works in which he took part.

This qualification for the practice of architecture, thus determined on the basis of competence in studies and of a first practical preparation, will have an essential and exclusive importance where large works are concerned or for appointments under the State and other public authorities. Professional practice for private individuals remains for the present free in Italy (subject to restrictions by certain building regulations in single cities) and is the field in which the architect and the engineer both work.

The other innovation of the Minister Gentile is more important and fruitful, since it relates to the preparation of artistic "adolescence" and affects the whole teaching of art in its first steps; that is to say in the period preceding the special technical and artistic teaching of architecture. In fact, it is clear that the most important problem of architectural education is that of the first beginnings; the architect should be a person with a humanistic and scientific culture, he should have a complete artistic preparation of the hand and of the mind; and all that cannot be improvised in a special course of five years but must have its roots in a first education that affects the whole secondary education. Since, on the other hand, it would be absurd in practice to found schools of architecture with a course of nine or ten years (and would be perhaps scarcely desirable on account of a quasi military rigidity that would be given thereby to the mind of the young), it is necessary that the organization of schools corresponding to "gymnasiums" and "lycées" should leave free field to the above-mentioned complete preparation, and that the State examination for admission to the high schools should give unity to the various aptitudes.

All this is already being carried out, and now there are being added the new schools of art instituted by the said reform.

Up to now there existed in Italy two institutions independent of each other, namely, the Institutes of Fine Arts, devoted to an abstract, one may almost say academic, study of the art, and professional instruction schools under the Ministry of National Economy, and not under that of Public Instruction, which give artistic industrial instruction. The Gentile reform amalgamates the two kinds of instruction, establishing as a principle that the study of art must begin, like in the "shops" of the Renaissance, with industrial and decorative applications and then pass to the pure art; and with this artistic education are linked classes for general culture which become even real and complete artistic lyceums.

The reform has, therefore, a twofold direct object: (1) to revive artistic teaching, which now too frequently degenerates into an academy (of old or of new character), and not infrequently becomes a factory of unemployed, since young painters or sculptors who passed through them have no other means of getting work than the uncertain one of art exhibitions; (2) to give a new impulse to the many artistic industries flourishing in Italy which require to be fertilized with new energies and new forces to ensure their revival.

Without going fully into the exact and long details of the new institution, which would take a long time and lead too far from the main subject, it is sufficient to say that it has in view art schools and institutes, artistic lyceums, academies of fine arts.

America

By DEAN BOSWORTH, Cornell University

KNOWING the parentage it should not be impossible for us to foretell some of the characteristics of future architectural education. Changes in system surely will come. Each country and perhaps each part of each country will have some detail peculiar to itself. In each, local conditions or local difficulties will require, as they require to-day, some modifications, some adjustments, to fit architectural education into its place as a part of a general educational system.

Of its parents the apprentice system is the elder. At the worst a penurious and cantankerous old man, subject to no influences except economic ones, which in the end caused the death of the whole guild system of which apprentage was a part. Too often the pupil unconsciously set as his goal a faithful copying of the master. He learned his style and mannerisms, his exaggerations and idiosyncrasies, but did not grasp the essential spirit of which these idiosyncrasies were the expression. He grasped the form not the substance, learned how to speak but had nothing to say. At its best, it was the most glorious system of education evolved by man, in that it was the personal inspiration of the student by the master who taught untrammelled by any system, unhampered and free in the firing of growing imaginations by the force of great example. When practice of this nature was teacher it was a greater influence and incentive towards high accomplishment than theory ever could be, but being individualistic it had no continuity. What was good did not of necessity perpetuate itself.

The future's inheritance from the formalized teaching of the schools is perhaps less spectacular, less obviously important. Theory even at its worst sought for basic causes, was interested in the past and the principles which it might deduce from that past. That the deductions were mistaken, it is true, but the spirit of research and analysis was recognized as a true foundation upon which to build. Then, too, it had continuity, a life of its own independent of the individuals who were teachers. Having continuity it was subject to influences from without. It might change but slowly, but change it did in response to that ebb and flow of students who sought for that place where education was most vital and deserted that where the dry rot of academic theory held sway unchecked. Analysis and synthesis, creative faculty and critical faculty, the theory and practice of architecture. The one must check the other. As in logic, "analysis and synthesis are not, if properly understood, separate methods, only two necessary parts of the same method. Each is the relative and corrective of the other."

These are the traits which we would wish should be educa-

tion's inheritance. From practice, the knowledge that no school can teach by system alone; that teaching in fact is only possible when it is learning, an act not of the teacher but of the pupil; that books and curricula are of use only so long as they serve as the crucibles in which teaching is transmuted into the precious gold of learning by the fire of imagination and enthusiasm kindled by contact with great personality. The awakening of the imagination is an act of the spirit rather than of the mind. From theory, thoroughness, a respect for scientific research and a scientific attitude towards the problems which the future architect must face. Our premises must be based upon knowledge, not sentiment, for sentimental conclusions have no more place in artistic work than in scientific; an inheritance from both, the best from each.

That it will be so I think is easy to believe. We have not changed so fundamentally since the days when men travelled to Thebes or Babylon, Athens or Alexandria, from one side of the world to the other to find that man or that place where analysis and synthesis were but two parts of one process. That the schools have come to stay I believe is sure, for they have a continuity and a responsiveness to our educational balance of trade which will act as an ever-present corrective—a corrective which can only exist where continuity exists. Our shrinking world will make this international index even more delicate, even more quick to point a way from the western continent or the eastern, the southern hemisphere or the northern, as the one or the other loses touch with life, or enmeshed in the net of practical construction again mistakes the means for the end. This corrective gauge will be not only an incentive to greater effort in the schools and country towards which it points, but by its very avoidance of another will spur that school and country to a higher standard. The schools of my own country owe much to France. They owe also much to the fact that once their own students deserted them. The compass needle points south as well as north.

We cannot all be on an equality; but the day will surely come when practice aided by theory will cast off the bonds of form precedent and suck from the dry bones of the past the living principles which created those forms, and theory guided by practice will take on new life and vigour in its mission of analysis of present-day needs and methods. The present no less than the past has its fetishes, its useless inhibitions.

Our diminishing distances will tend to make us more alike, each country to its neighbour, each school to its rival, not in its exact system of education nor in its details, but in understanding of the basic aims of architecture, in its appreciation of architecture as a great interpretive art.

England

By H. V. LANCHESTER, F.R.I.B.A.

TO my mind the defects of the system at present in vogue are mainly due to the steam roller labelled "curriculum," which aims at turning out every student with a certain uniform acquirement; of course it cannot succeed, but in its effort to roll everyone out to an ideal pattern, a good deal of harm is done. To begin with, it disguises inherent disqualifications and thus fails to eliminate the unfit at an early stage; furthermore, it militates against the development of individuality in type, assuming that four or five valuable years may be spent by every student in similar pursuits with equal profit. The whole tendency of the age is towards specialization, and even a single profession such as our own has become too wide in its scope for most of us to master all its ramifications, but while I regard the form of specialization that confines us to certain types of building as vicious, I hail as beneficial that which makes the design and conduct of building operations a co-operative effort. Having myself carried out many designs in conjunction with another whose capacities dovetailed in with my own I may have an excusable prejudice in favour of this, and possibly the school cannot be expected to anticipate such a practice, but I do feel that at the end of the course a differentiation in qualification should be admissible, such as honours in some branches and pass in others, giving some indication of the graduate's special faculties.

Without this attempt to give an idea of the considerations that, in my opinion, must influence our attitude towards education, it would be difficult to explain the reasons for such changes as I would advocate, and this must be my excuse for the discursive character of this preamble. Even after disburdening myself of it, I am still doubtful of my ability to satisfy you as to the possibility of a forecast, feeling rather that my scheme is to have no scheme. However, I will make the endeavour.

To begin at the beginning it must be clear that in the case of anyone destined for an artistic occupation, some indication of aptitude will be evident at quite an early age, say, between eight and twelve, and though it is usually undesirable that studies should take a technical direction before adolescence, faculties of all kinds, especially those of observation and deduction, now too generally permitted to lapse, should be judiciously developed from the time that they first appear. Our public schools have been just as wide of the mark in failing to effect this as our own professional ones, with less excuse.

Educationalists are beginning to recognize this, and I hope to see one day our young people on leaving school presented with a certificate reciting what types of occupation they are likely to be capable of. It seems to me quite absurd that a youth should go to the age of sixteen or eighteen without having his thoughts turned in any particular direction and should then be pitchforked into this occupation or that on grounds that are often quite inadequate.

Taking architecture as the case in point, the school tests would be ability in drawing, including imaginative aptitude, together with the capacity for grasping the science of geometry, which is bound to connote a sufficient measure of mathematical facility. These qualifications, or their absence, are in my view, conclusive, and are, or should be, within the curriculum of every school. A student with these credentials is not running a great risk in taking up a course in architecture, but it has yet to be discovered whether his imagination is vigorous enough to survive the discipline demanded in the technique of this subject, which is a most searching test. Original work in ornament and decoration might be carried on side by side in order to provide comparative results; these would not militate against architectural proficiency if the latter can be attained, but may offer an alternative route to imaginative design should the trammels of construction prove too stringent for the expressive faculty.

On the other hand, should the logical and scientific attitude of mind take charge it should then be possible for the school to open a route in this direction and secure a high degree of efficiency in this without having to tack on to it a guarantee indicating a high grade in architecture. Possibly these will be the exceptions, and the majority, if accepted only on some such certificate as I have indicated, and with the proper adaptations in the course of study, will be able to justify the adoption of architecture as their work in life, though as we all know, the more searching test will come later. Much can be learnt, but those whose work will live for all time are but few, I should like to propound my theory as to how a maximum proportion of such work could be secured, but this would be outside our range at the present, and I will pass on to the question of training in the practice of our profession; though as regards this I shall be very brief, because it is really only ancillary and not essential to architecture as an art, and is moreover fairly well recognized as a necessary form of knowledge, and provided for both by instruction and by the inclusion of a term in an office in the curriculum. I do not suppose anyone imagines that either of these are assumed to be comprehensive, but after all, a cool head and tactful disposition will enable any new difficulties to be met as they arise.

I should like to add a few words on the place of what is termed a "liberal education" in the making of an architect. The outlook on life that such an education gives makes existence mean so much more that it is well worth possessing, but in view of my claim that the education of the artist must begin with his earliest years you will naturally scent a conflict between the continuity of this and the demands of the broader studies. I affirm that this continuity must not be broken and that if the artist cannot secure the broader outlook through the windows of his art, he can only afford to seek it during his life with the balance of energy allowed him by his proper occupation. After all, an art is itself in great measure a liberal education, and again, such an education is a lifelong affair more accessible by means of an open mind towards what has been and now is, than by a term of years devoted to specific studies.

Once more let me insist that true education is the development of faculty to the utmost, whatever that faculty be, and that only by keeping this clearly before us shall we attain to the greatest results.

Little Things that Matter—35

Surface Finish—Necessary Elements of Construction as Notes in a Colour Scheme—Upkeep of Finished Surfaces

By WILLIAM HARVEY

HOW far architectural effect can be produced by the purely rational solution of the practical problems which arise in supplying the conveniences and construction of a house, and how far it is necessary to refer to the details of a past style, are questions to which each individual will return a personal answer. Historical art is studied by different architects from entirely different points of view, and where one is bent upon learning how to copy adroitly the old forms of architecture, another will attempt to discover the principles which guided the masters who invented them.

The point of contact between questions of style and the practicalities of little things that matter lies in the ease or difficulty with which the details of stylistic architecture can be constructed in the first place, and maintained when constructed.

The method of judging artistic things by a strictly utilitarian standard which resulted in the condemnation by Dr. Johnson of the famous alabaster columns of a lordly mansion on the ground that "they take up too much room," would lop art rather than prune it, but there is nothing to be gained by applying to the cottage the ornament appropriate to the palace, and less than nothing if the style of execution cannot be maintained and a feebler and cheaper imitation of it is substituted.

A comparison of old work with new often reveals the fact that where the old design and construction was sound and simple in its main lines, with delicate and interesting ornament sparingly introduced (see Fig. 1), modern design and construction is complex in its main outlines and coarse in detail. Many beautiful examples of old cottages exist, where the roof is long and straight and unbroken, whereas the modern cottage is given breaks in plan for "picturesque effect" and little gables stuck on to the roof to "cut it up and make it artistic." Now, these are unnecessary elements of construction used as parts of an artificial architectural composition, and only the hand of a great master can adjust them in such a way as to allow them to appear anything but what they are, redundant features neither genuine as construction nor interesting as ornament (see Fig. 2). Even the Johnsonian lopping process would probably do little harm to these examples of modern architecture, for ugly utilitarian bareness is preferable to that ugly bareness with an added complexity of useless features; but something better is required.

Results should be obtained by the use of necessary elements of construction, and by seeing to it that in convenience of disposition, in permanent soundness of material, and in pleasant proportion, colour, and texture the necessary elements build up a total effect as truly artistic as it is logical (see Fig. 3).

The colour, as well as the quality, of building material must be considered, for upon it (in the absence of stylistic architectural forms) and upon the division of the building into masses of light and shade its effect will depend. In respect to colour, permanence has to be taken into account. Modern invention has added to materials formerly used in building, a group of new materials in which the natural light-grey colour is disguised by stains and pigments. It matters immensely to building whether the materials are sound enough for their purpose, and to architectural design that they should be dependable in colour.

Cheapness in first cost is dearly bought if upkeep is increased; and if a roof covering, for example, needs periodical coating with pitch to keep out the rain or to disguise its unpleasant colour, the price of a more permanent material will soon have been incurred.

The unpleasant effect of artificially stained building materials begins long before all the stain has washed away, and counts from the time when a small portion has faded and thrown a doubt upon the rest.

In some cases, as of foreign tiles made of non-ferruginous clay, but artificially stained dark red for the English market, the effect is better when the dye has washed out and the natural light colour of the tiles has reasserted itself. Some cement tiles bleach temporarily in the process of drying after rain, and a certain amount of lightening in tint even affects superficially stained imitation hand-made tiles of clay.

One material which enters into all modern house-building, and is at once a necessary element in construction and an important note in the colour scheme, is the window glass.

A window pane seen from the exterior normally counts as a dark grey object little less intense than an unglazed opening or a black painted surface, such as was sometimes substituted in imitation of it by folk of a former generation, when a window had been sacrificed to save the tax, and a panel of new red brick would have left an unbalanced composition. The position of the pane and the angle at which it is set in regard to the daylight modifies its colour, which is also affected by the quality of the glass. Old crown glass, with ripple marks in concentric circles, picks up delightful flashes of light that give life to the primest façade.

Ordinary sheet glass of slightly irregular surface, though far less beautiful than crown glass, is more interesting than plate with its dead uniformity. Where there is no particular object in providing for outlook through the window, it is not illogical to use the thinner glass with ripple marks, for, though it distorts the outlines of external objects, it is more transparent as regards letting light into the interior than is heavy plate. All circumstances should be considered, however, for nothing is more destructive to architecture than the cutting out of window bars in one part of a façade and the substitution of plate glass in ungainly masses after the windows have originally been designed for sub-division into well-proportioned small panes (see Figs. 4 and 5).

It is not only because the plate glass has a comparatively uninteresting surface that the change is to be regretted. The light-coloured sash bars carry a mesh of contrasting tone into the dark grey, and this mutual interpenetration of one colour by another is one of the most valuable principles of colour decoration. Cut out the bars, and the window ceases to embody it, and lapses from an element of artistry to one of mere utilitarianism.

The distressing effect produced by the substitution of plate glass for smaller panes is also due in part to the discord in proportion in the shape of the area of plate glass and that of the window frame as a whole. The frame has been designed to contain a number of small panes of definite shape, and probably has also been considered—in old work at all events—from the point of abstract proportion in accordance with some favoured numerical system. The substitution of two masses of plate dividing the window into two halves, one above the other, in place of twelve small panes inevitably contradicts the proportion of the outline (see Fig. 6).

When suitably detailed, plate glass is not necessarily ugly, but each mass of it must be given a pleasant proportion considered as a geometrical shape and in relation to the other dark masses of glass and to the surrounding lighter-coloured masses of solid material.

FIG 1.
COTTAGE WITHOUT CONSCIOUS USE OF STYLISTIC FEATURES. DARK WINDOW PANES IN WHITE WASHED WALL, BROWN STONE ROOF & LARGE CHIMNEYS COMPOSE A COLOUR SCHEME

FIG 2.
COLOUR SCHEME BUILT UP OF FEATURES CONSCIOUSLY EMPLOYED FOR EFFECT BLACK & WHITE & RED BRICK FRONT, ELM BOARD PORCH, STAINED GLASS IN TRANSOMES CONFLICT WITH MEAN GREY ROUGH CAST & SMALL CHIMNEYS

FIG 3.
HOUSING SCHEME HOUSE SHARES SOME OF THE GOOD QUALITIES OF THE COTTAGE WITH RATHER GREATER RESPECT FOR CLASSIC TRADITION. THE EFFECTS ARE RATIONALLY OBTAINED

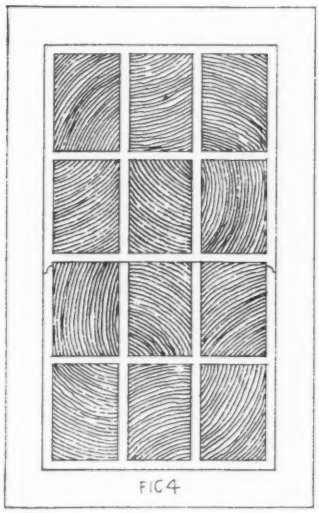


FIG 4

OLD FASHIONED WINDOW WITH PANES PROPORTIONED TO SIDE & DIAGONAL OF A SQUARE & FITTED INTO FRAME OF DEFINITE GEOMETRICAL PROPORTION

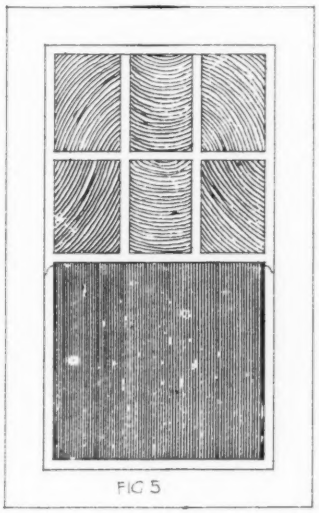


FIG 5

SUBSTITUTION OF ONE LARGE PANE OF PLATE GLASS FOR SMALL PANES ROBS WINDOW OF THE COLOUR VALUE OF LIGHT BARS ON DARK MASS OF GLASS

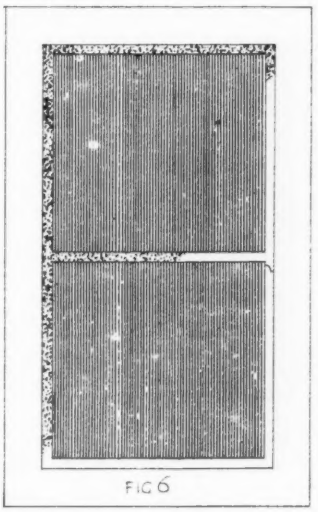
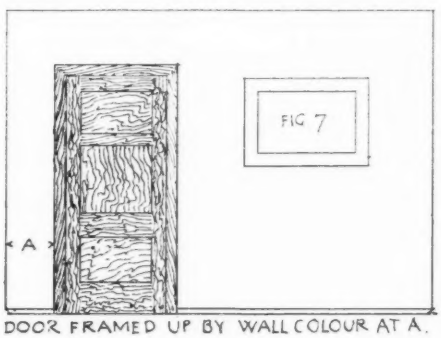
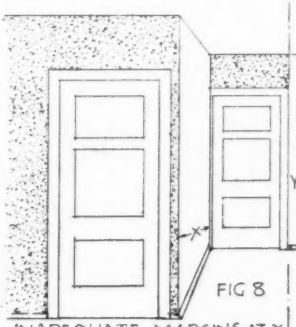


FIG 6

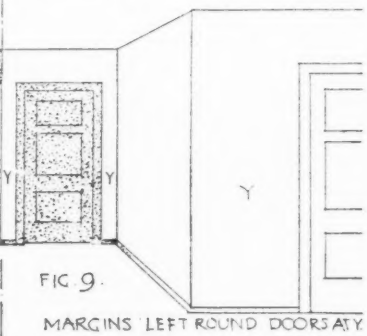
DIVISION OF WINDOW INTO TWO EQUAL HALVES IS MONOTONOUS COLOUR IS LESS INTERESTING THAN IN FIG 4 & PROPORTION IS SPOILT



DOOR FRAMED UP BY WALL COLOUR AT A.



INADEQUATE MARGINS AT X



MARGINS LEFT ROUND DOORS AT Y

LITTLE THINGS THAT MATTER DIAGRAMS. DRAWN BY WILLIAM HARVEY.

The possibilities of disharmony are introduced when glass of different character is used for similar windows in the same façade, and become acutely evident when coloured glass is used in the upper part of a window and clear glass below (see Fig. 2). Obscured glass is generally somewhat lighter in tone than clear glass when seen from the exterior of the building, and though it is useful in the windows of bathrooms, larders, and fuel stores, an obscured glass that would be efficient and at the same time would carry the colour value of plain glass is greatly to be desired.

The choice of paint of an unsuitable hue and tone for the window bars and frame will suffice to destroy their artistic value when seen from a slight distance. The beautiful dark blue of *lapis lazuli* would be wasted on a window bar since its depth or tone would approach too nearly to that of the glass, and the bars would simply fail to "show up."

If blue must be used in such a position a light Wedgwood tint would be more suitable, as it would be light enough to contrast with the dark-grey panes on either side of it.

When some of the bars have been actually cut out it may be desirable to suppress others in the interests of good proportion, and this may be achieved by painting them grey or black (see Fig. 6). It may still be possible to paint the outer frame a light colour in order to separate the dark mass of window from the semi-tone of the walling. Care must be taken to see that the borders of black and white are not equal in width, as, for some unexplained reason, such a proportion seems depressing to a great many persons.

One of the necessary elements of construction that frequently receives scant attention in respect to its colour value is the chimney. A poor little stack, too thin and too short, but crowned with a monstrous zinc cowl is not a credit to any house, for the mass of colour carried up into the sky ought to be big enough to harmonize with the other parts of the house when seen in silhouette, whatever style of architecture has been adopted (see Figs. 1 and 2).

Before any elaborate detail is determined upon, the effect of the bulk and position of the chimneys should first be ascertained by perspective views showing the interweaving of the building into the sky and the sky into the building. A pleasant outline for the whole group of buildings, roofs, and chimneys is worth pounds spent in producing elaborately twisted shafts if these happen to be perched where they do not aid the main effect. The kitchen chimneys of Hampton Court Palace are fine examples of the systematic combination of massing and detail, and lovers of tit-bit architecture should ask themselves how much of their fine appearance is not due to the masterly disposition of the masses apart from any special play of fancy in the minutiæ.

Masses of walling surrounding windows and standing beside doors can be made decorative without the use of architectural features if the positions of the openings are chosen in such a way as will allow of pleasant framing-up in the walling material (see Figs. 7, 8, 9). This is an art more often practised in hot countries (where walls are left as plain surfaces without pilasters) than with us, and needs an eye trained in the open rather than a pencil and a drawing-board. English methods of design too often favour the leaving of the windows just where they happen to come, and trusting to some added detail to withdraw attention from their lack of balance.

As the window practically counts as a dark mass scarcely less intense than a patch of tar, and is far more conspicuous than the shadow beneath a cornice or beside a pilaster, there is not much to be said for the process, though it has figured largely in competition drawings, and even in successful ones.

In the interior of a building every different material affords an opportunity for the combination of utility with colour treatment. The hard, red quarry tiles of a farmhouse kitchen are as useful as they are ornamental, and when laid with flush joints of Portland cement on a solid concrete base make a sound and beautiful floor. Nine-inch square quarry tiles make splendid window boards, and are heavy enough to stay in position if bedded in fresh cement. They are more suitable for use with distempered or painted walls than with elaborate moulded joinery and wallpaper, and possibly look best where the window reveals are covered with plaster distempered in some light tint. Such floors and window boards are easily cleaned by wiping down with a damp cloth even when sooty saucepans or muddy flowerpots have been rested upon them. Another incidental advantage of the tile floor is that it puts a premium upon the use of mats and rugs that can be frequently taken up for cleaning and discourages the installation of that insanitary horror, the nailed-down carpet.

In southern Europe, tiles and hard bricks are used for staircases and steps both internal and external, and the staircarpet is eliminated. A surface impervious to vermin is provided, and in the case of the ground floor the economy of laying a tile surface on the layer of concrete demanded by the by-laws is also worth consideration.

A brick staircase contrasts pleasantly with the white-washed dwarf wall, which serves as balustrade, and joins utility and colour with a high degree of permanence provided that suitable materials are chosen.

Wide cement joints with carborundum particles to maintain a grip would do away with the principal objection to bricks and tiles used as pavings, which are inclined to be somewhat slippery in use.

Only a few brickmakers turn out the right quality of brick and tile for such purposes or for use in the home-made hearths and fires that have become fashionable of late years. Spilt food and drink, splashed ink, medicine and chemicals have to be thought of, and absorbent, sandy-surfaced bricks should not be chosen for internal use however pleasing their colour.

Doors are favourite points for the introduction of colour in a light walled room, though considerable difference of opinion exists as to the most appropriate treatment for them.

A white-painted door is very much at the mercy of the help, who advertises her association with the black-lead brush by leaving her manual seal on it in passing. Attempts to scrub away the continually renewed stains are bound to end in the removal of the paint unless the delinquent can be replaced by some neater-handed person.

The rival advantages of matt and shiny surfaces have been canvassed, but while dull surfaces pick up dirt more quickly they show it less, and when injured can be cured with the application of a single coat. Scratches in an enamelled surface are more difficult to remedy.

Hard woods left clean from the plane, or even sand-blasted to raise the grain, are also liable to become unequally soiled in patches. Stained and french-polished wood is exposed to kicks and scratches, and then needs skilful touching up.

An unsuitable stain will sometimes wear away on the edge of the locking style of the door under the friction of passing hands, and has to be re-stained as well as re-polished. Fumed woodwork has a more permanent colour for the ammonia sets up a chemical action in the fibres that penetrates deeply into the wood and cannot be worn off. Wax polish is sufficient to protect the surfaces so treated.

Where plywood panels are employed it is advisable to see that the surfaces are absolutely flat if polish is to be applied. Most plywoods bend and curve with alternations of temperature and humidity, and undulations in the surface pick up unintended high lights that are made far more apparent by polishing.

Fumed and dull surfaces for hard plywood surfaces and tar product stains for soft plywoods are probably the most suitable for internal use.

The fashion for wallpaper, as a poster in the tube points out, persists because of the ease with which it can be made to cover minor defects.

Small cracks in walls, ceilings, and partitions that are provocative of anxiety out of all proportion to their structural importance, can be conveniently put out of sight and out of mind under cover of lining and wallpapers. There may be something ostrich-headed in so doing, but since the paper will tear on the slightest movement the danger is

not so great as might be imagined. The application of a paper covering to preserve the surface of poor, soft-quality plaster from disintegration is even philosophically defensible, as the superior tensile strength of the paper reinforces the friable material.

The stronger-minded course of effectively cutting out and repairing cracks and soft places, and covering with a coat of distemper, is probably productive of rather more initial trouble, and is only satisfactory where absolute uniformity of tone is not an essential.

New patches affect the colour of most water paints, and only those specially recommended by the maker should be used. These are generally white, cream, beige, ivory, buff, and stone colours, and to use fine tints on new plaster is to invite scaling, running, and bleaching. A sure way of making a new house look thoroughly shabby and disreputable is to paint its walls with unsuitable pigments, selected because they are favourite hues and not for their lime-resisting qualities.

The fascination exercised upon the client by a favourite colour is almost certain to overpower any advice or warning the architect can give, and the colour-merchant who prints in large letters over all the more fugitive colours in his sample-book "won't paint new plaster," will be doing a service to the profession that should react favourably on his business turnover.

Mr. Winston Churchill at the A.A.

MR. AND MRS. WINSTON CHURCHILL visited the school of the Architectural Association on the occasion of the annual prize-giving. Mrs. Churchill presented the awards.

Addressing the students, Mr. Churchill said he knew nothing about architecture except as a member of the general public and as one who had endeavoured during the last year, or year and a half, to construct a modest dwelling. Proceeding, he said there was no doubt whatever about the influence of architecture and structure upon human character and action. We made our buildings, and afterwards they made us. The whole character of British Parliamentary institutions depended on the fact, at the present time, that the House of Commons was an oblong and not a semi-circular structure. There would be no party difficulties or embarrassments if it had been an amphitheatre, as were nearly all the Continental and American models. Then every shade of opinion would find its exact sector, and the politician would move from the most extreme left to the most extreme right without a single shock and without violent transition of any kind by a series of most beautiful gradations of political thought. (Laughter.) The chamber was flanked by lobbies, and it had a gangway up the centre. That constituted a considerable, but not necessarily impassable, abyss on either side of which political opinion had to be ranged and grouped in more or less extreme and organized forms. The party system undoubtedly depended on the shape of the House of Commons.

No one could doubt the vital importance of organized study of architecture who was aware of the present situation on the housing question. There was every need for novelty and new methods. The old methods had fallen under the control of various restrictive processes, for which both Capital and Labour had their separate responsibility, and from all of which the general public suffered at the present time. The next few years would witness the advent of several new methods of constructing dwellings. He was shown only two days ago the models of cottages which were to be made of a material which, only a few weeks ago, would have been thought one of the most unexpected materials for house construction. The cottages were to be made of steel. There were to be great stamped sheets of steel constructed in sequence in such a fashion that they could be readily erected. They were to be backed with timber, and provision made for proper air space to render the houses insusceptible to the changes of temperature. Before long, Mr. Churchill added, the public would be able to see, probably at Wembley, exhibits of houses constructed after the new method.

He had no doubt whatever that new methods of construction would compete increasingly in the next five or ten years with existing methods in regard to the simple buildings required by the working people.

Mr. H. S. Goodhart-Rendel, president of the Association, who occupied the chair, said that before the war England was alone in having no systematic architectural education. Most people got their training by working with an architect. They really got their experience in the blood of their first client. It was said that the schools checked originality and suppressed natural genius. The kind of genius that could not get through any academic hedge was better kept under. The school did not discourage originality, but endeavoured to give a really good jumping off ground for everybody.

MR. WINSTON CHURCHILL.
(From a caricature by H. de C.)

Mr. Robert Atkinson proposed a vote of thanks to Mr. and Mrs. Churchill, observing that young architects would not be slow to appreciate the possibilities of new materials if they were given the opportunity of handling them. He attributed much of the present industrial unrest to bad factory accommodation. The architects' power of analysis and seeing ahead would have much to do with the political outlook of factory workers in the future.

Mr. Philip Tilden, seconding the vote of thanks, observed that politicians could do much to help architecture, especially by saving ancient buildings that were threatened with demolition. Old buildings were valuable in the eyes of the architect, not only for their intrinsic beauty, but for their associations.

The list of prizes and studentships for 1924 is given on page 222.

Law Report

Ancient Lights Dispute—Important Liverpool Case

Cooper & Co. Stores, Ltd. v. *C. & A. Modes, Ltd.*

July 16-31. Chancery Division. Before Mr. Justice Eve.

Further evidence was given in the Chancery Division, before Mr. Justice Eve, on behalf of C. & A. Modes, Ltd., of Broad Street, London, the defendants in the action brought by Cooper & Co. Stores, Ltd., of Howard Street, Glasgow, to prevent alleged interference with the light to the plaintiffs' shop in Church Lane, Liverpool, by a building in course of erection for the defendants on the east side, opposite to the plaintiffs'.

Mr. Francis Joseph Kirby, surveyor and valuer, Liverpool, was again cross-examined by Mr. Luxmore, K.C., for the plaintiffs.

Counsel said they had got information as to the rating of the ground floor of Messrs. Cooper's premises. The new building, which was rated separately from the others, was assessed at £4,144 for the ground floor only, and the other rateable values of the premises on the same floor were £1,978 and £300.

Mr. Kirby said he did the rating for the rating authorities in this case, and when they rated premises like these they did not apply the same figure per square yard when they were doing it piecemeal, as different parts had different values.

Mr. Luxmore stated that the figures he gave were the gross assessment—£6,422 for the ground floor.

Re-examined by Mr. Cunliffe, K.C., for the defendants, Mr. Kirby said he had had to deal with large businesses in the large towns of the North of England, and it was not his experience that premises like Messrs. Cooper's on the ground floor in such towns in the business centres received 45 deg. of light.

From your experience of buying and selling and using property, will Messrs. Cooper's building on the ground floor, when Messrs. Modes' building is up to its full height, be well or badly lighted compared with the generality of conditions on the ground floor of business premises in busy towns in the North of England ?—Certainly well lighted on that basis.

Is it reasonable to expect in a big town that a shop under normal conditions should be lighted with daylight for the whole day ?—Certainly not.

Mr. Luxmore said he never suggested that for the whole depth of 60 ft.

His lordship: Only half and half, like stout and bitter. (Laughter.)

Mr. Cunliffe: I don't know which is stout and which is bitter. (To witness): Is it reasonable to expect on the ground floor of such premises that for a depth of 30 ft. from the window the shop should under normal conditions be lighted with daylight ?—I do not think it is.

Having regard to the depth, and that this is ground floor premises, do you think that daylight lighting up to that point is better than the generality of lighting under such conditions ?—Yes. I think it is very satisfactory. Witness also said that if the defendants' building went up to its full height he was quite satisfied it would not have any effect upon the value either as a capital or a rental sum, having regard to his long experience.

Mr. Cunliffe mentioned that his clients were under covenant to build under certain plans.

His lordship: So I understand.

Mr. Kirby was examined and cross-examined as to the positions chosen by Col. Kirkby to make his tests of the light at premises in the neighbourhood comparable with Messrs. Cooper's premises. He said he took Col. Kirkby to the places selected and allowed him to choose his own positions, and no attempt was made to obtain abnormal results.

Mr. Sidney Vincent North, senior partner in the firm of North, Robin, and Wilsden, architects and surveyors, London, said he had been in practice over twenty-eight years, partly in London, and partly in the provinces. He had been architect to Messrs. Modes for some time, and was consulted by them when they were considering the purchase of the Church Lane site. The rent was £4,650 per annum. They put up the building, which would cost £50,000. It was much lower than Messrs. Cooper's, and they got on the first floor about the same amount of light, coming over Messrs. Cooper's premises, that the latter got on the ground floor, coming over Messrs. Modes' premises. He calculated the amount at 31 deg., which was less than Cooper's got. He did not regard that as any disadvantage to Messrs. Modes. It was a good light compared with the light received by similar buildings in big towns. From his experience as an architect and surveyor he did not think that the amount of light coming to their ground floor would cause any depreciation in value of Messrs. Modes' premises.

Mr. Cunliffe, summing up their case, said the questions which his lordship would probably ask were: (1) Have the plaintiffs, or will the plaintiffs have, when the defendants' building is at its full height, less light through their existing windows than they would have got through the retained ancient windows obstructed with a permissible obstruction ? (2) Have the plaintiffs less light left than they require for the beneficial use of their premises for the purpose of business, having regard to the locality and the character of the neighbouring buildings ? Upon these questions the plaintiffs had entirely failed to discharge the onus which lay upon them, and failure with respect to either of these questions was sufficient to disentitle them to any relief.

His lordship: Probably that will not be disputed.

Mr. Cunliffe said with regard to the question of the identity or retention of the ancient lights, he submitted that Mr. Fraser's (plaintiffs' architect) evidence showed that he did not contemplate ancient lights at all. He never thought there was any possibility of their being obstructed, and the whole of plaintiffs' building was designed in an entirely different way from the old buildings which formerly stood on the site. From these facts his lordship should come to the conclusion that there never was any intention to preserve the ancient lights.

His lordship: Have you not to show an intention to abandon ?

Mr. Cunliffe said it was a question of inference from facts. With regard to the question of obstruction, he submitted that the defendants could have obstructed the plaintiffs' light so as to leave them less than 45 deg. of light. Tested by the height of the window or by a comparison of floor space with window space it was quite obvious that the old buildings had a superfluous amount of light. Counsel went on to criticize some of the notions that were entertained as to the quantitative values of light, in particular the relation of the grumble point to the point of penetration. He said they must receive the notions of quantitative value of light with some regard to common sense.

Mr. Luxmore, continuing his arguments in the course of his final reply on the case, said the light must be judged through the old apertures, and the use to which it was put inside was not really material. The plaintiffs had preserved all the window space there was on the first and ground floors of the old buildings so far as was material for their present ground floor. The defendants, therefore, must not interfere with the light as it stood now beyond the 45 deg. obstruction. Was there anything in this locality which entitled the defendants to take away as much light as they had taken ? The light they had taken away was such that the plaintiffs' shop would practically be turned from a daylight shop in ordinary dull weather into an artificially lighted shop. It was no use to take the test of other shops in the locality unless they knew whether those shops were entitled to more light. The test was: Had the plaintiffs' light been interfered with, and were they reasonably entitled to complain ? As to the relief which they asked, the plaintiffs had no desire to be unreasonable, and they left it to the court to say whether money damages would meet the case of the defendants having gone up with their building to the present height of 50 ft. But he submitted that the building ought not to go beyond its present height in any circumstances, and an injunction ought to be granted to restrain any further building.

His lordship, in the course of his judgment, which he gave on Thursday, said that the direct light in the shop was less than would be the case in an uninterrupted horizon no one doubted. But the sufficiency or superfluity of what was left was to a large extent a matter of practical daily experience. He had come to the conclusion that the completion of the building would not materially affect the beneficial use and enjoyment of the plaintiffs' premises as a shop for business purposes. He must, therefore, dismiss the action with costs.

We shall publish the judgment in full in our next issue.—Ed., A. J.

The Congress Banquet

The R.I.B.A. banquet in connection with the Congress was held on Thursday evening at the Hotel Victoria, the President, Mr. J. Alfred Gotch, presiding. Following is a list of those present:—

Agutter, Mr. T. C.
Annoni, Prof. Commendatore A.
Ansell, Mr. W. H.
Arnott, Mr. James, A.
Begg, Mr. John.
Bennett, Mr. T. P.
Bentsen, Mr. Ivar.
Bérard, Monsieur A.
Blomfield, Sir Reginald.
Boni, Prof. Commendatore G.
Boring, Prof. W. A.
Bossom, Mr. A. C.
Brummer, Mr. Carl.
Brummer, Mrs. Carl.
Budden, Prof. Lionel B.
Bullock, Mr. A. E.
Bullock, Mr. A. E. (guest).
Burnet, Sir John.
Cart de Lafontaine, Lt.-Col. H. P.
Cart de Lafontaine, Mrs. F. E.
Child, Mr. H. L.
Cordonnier, Monsieur L. M.
Cordonnier, Madame.
Cordonnier, Mlle.
Corfiato, Mr. Hector O.
Corlette, Major H. C.
Crawford and Balcarres, The Earl of.
Crompton, Mr. W. E. Vernon.
Cruickshank, Mr. Alec.
Cruickshank, Mr. Alec (guest).
Culley, Mr. Norman.
Culley, Mrs. Norman.
D'Achiardi, Prof. Commendatore P.
Danis, Monsieur R.
Davies, Mr. Hugh.
Davies, Mr. W. R.
Davis, Mr. Arthur J.
Davis, Mrs.
Dawber, Mr. E. Guy.
Defrasse, Monsieur A.
Defrasse, Monsieur, Jun.
Defrasse, Madame.
Dickinson, Mr. H.
Dickinson, Mr. H. (guest).
Dickinson, Mr. H. (guest).
Dircks, Mr. Rudolf.
Drobny, Prof. Franz.
Drysdale, Mr. George.
Emerson, Prof. W.
Emerson, Mrs.
Emerson, Mrs. Haven.
Fairlie, Mr. J.
Fitte, Mr. Raul E.
Fletcher, Mr. H. M.
Fletcher, Mrs. H. M.
Gardner, Prof. E. A.
Gilbert, Mr. Cass.
Gilbert, Mrs. Cass.
Girault, Monsieur Charles.
Girault, Madame.
Goodhart-Rendel, Mr. H. S.
Gotch, Mr. J. Alfred.
Green, Mr. W. Curtis.
Green, Mrs. Curtis.
Guilbert, Monsieur A.
Hake, Mr. Gordon.
Hamp, Mr. Stanley.
Hamp, Mr. Stanley (guest).
Hannen, Mr. E. C.
Haynes, Mr. Everard J.
Hébrard, Monsieur Jean.
Hind, Prof. A. M.
Holt, Mr. Gordon H. G.
Howling, Mr. G. J.
Horta, Monsieur Victor.
Horta, Madame.
Jaussely, Monsieur M. L.
Jeans, Mr. Herbert.
Jenkins, Mr. Gilbert.
Jesek, Mr. Vladimir.
Kaye, Mr. Martin.
Keen, Mr. Arthur.
Lafontaine, Mr. H. C. de.
Lallerstedt, Prof. Erik.
Lanchester, Mr. H. V.
Lanchester, Mrs. H. V.
Leverhulme, The Viscount.
Linden, Mr. Gustav.
Louvet, Monsieur Albert.
MacAlister, Mr. Ian.
MacAlister, Mrs.
Macartney, Mr. Mervyn.
McGibbon, Prof. Alex.
McNeill, Mr. James.
Meeks, Mr. Everett V.
Mercado, Sen. Antonio Rivas.
Monasterio, Sen. Manuel O.
Monson, Mr. E. C. P.
Newton, Mr. W. G.
O'Brien, Mr. Dermod.
Oliver, Mr. Basil.
Osler, Mr. Frank.
Ostberg, Prof. R.
Otano, Mr. P. M.
Otano, Miss M. M.
Partridge, Mr. E. J.
Pearce, Dr. E. C.
Pedersen, Mr. Sverre.
Pite, Prof. A. Beresford.
Plack, Mr. W. L.
Plume, Mr. W. T.
Purchon, Mr. W. S.
Reilly, Prof. C. H.
Robbins, Mr. H. C.
Robertson, Mr. Howard.
Rollo, Mr. R. Leslie.
Saunders, Mr. J. T.
Saunders, Mr. J. T. (guest).
Sciortino, Prof. Antonio.
Scott, Sir G. Gilbert.
Scott, Lady.
Sheehy, Mr. Brian E. F.
Simpson, Sir John.
Skinner, Mr. John L.
Slater, Mr. J. Alan.
Slothouwer, Dr. D. F.
Smith, Mr. Albert W.
Smith, Sir Cecil Harcourt.
Somaké, Mr. M. J. H.
Somaké, Mr. M. H. (guest).
Squire, Mr. J. C.
Stabell, Prof. Harald K.
Stratton, Mr. Arthur.
Sullivan, Mr. Leo S.
Sulman, Sir John.
Swarbrick, Mr. John.
Thomas, Sir A. Brumwell.
Thomas, Miss.
Thomsen, Mr. E.
Thoumy, Monsieur. E.
Townroe, Capt. B. S.
Tvede, Mr. Jesper.
Unwin, Dr. Raymond.
Unwin, Dr. Raymond (guest).
Van der Steur, Mr. A. J.
Voysey, Mr. C. F. A.
Walston, Sir Charles.
Ware, Mr. Edmund.
Warren, Mr. Edward P.
Warwick, Mr. Septimus.
Waterhouse, Mr. Paul.
Watson, Major W. E.
Weaver, Sir Lawrence.
Webb, Mr. Maurice E.
Webb, Mrs. Maurice.
Wilby, Mr. Ernest.
Wills, Mr. H. W.
Worthington, Prof. J. Huber.
Yerbury, Mr. F. R.

The President, submitting the toast of "The Progress of Architectural Education," said this had become so firmly established during recent years that its continuance in the future might be taken for granted. Its success depended in large measure upon the teachers, to whom, as well as to the Board of Architectural Education, they owed a deep debt of gratitude. He had little doubt that architectural students, as a rule, would avoid the danger of becoming too learned—but, at the same time, in architecture, as in letters, a little learning was a dangerous thing. Referring to the presence of so many eminent architects from overseas, he said it was a most delightful circumstance, which prompted the wish that all nations could be as closely united in politics as they were in art. With the toast he coupled the names of M. Charles Girault—whose singular genius had already been recognized by the Institute in the award of its Gold Medal; Mr. Cass Gilbert, designer of the Woolworth building in New York; and Professor Ragnar Ostberg, of Sweden, whose splendid design for the new Town Hall at Stockholm had filled them with deep and genuine admiration.

Each of the gentlemen named responded. Mr. Cass Gilbert described architecture as the recorder of civilization—in fact, the recorder of life itself. It might sometimes try to imitate, but it never could do so really, because it always reflected the conditions and civilization in which it existed. He anticipated that, whatever they or their successors taught, the architects of the future would, consciously or unconsciously, record indelibly the civilization of the age in which they lived. It was said of Solomon that he was the wisest of men—not the most learned. Let them teach wisdom and understanding—understanding of the spirit of the age. A trained mind would govern an active imagination, making it more useful for the present and more valuable for the future.

Mr. Paul Waterhouse, proposing "Our Guests, Foreign Countries, and the Dominions of the British Empire," mentioned that the assembly represented seventeen nations.

Professor Harald Stabell (Norway), Sir John Sulman, and Professor Wellesley McConnell responded.

List of Members Present at the Reception by the President and Council of the R.I.B.A., Monday, July 28.

Mr. and Mrs. Henry V. Ashley.
Major Harry Barnes.
Mr. C. McArthur Butler (secretary, Society of Architects).
Mr. T. P. Bennett (Northern Polytechnic Institute).
Mr. H. T. Buckland.
Dr. Otakar Bures.
Professor William A. Boring.
Mr. F. H. Bosworth, Junr.
Sir John and Lady Burnet.
Mr. John Begg.
Mr. and Mrs. L. H. Bucknell.
Mr. Martin S. Briggs.
Mr. and Mrs. Chalton Bradshaw.
Mr. Robert Boker.
Mr. and Mrs. Carl Brummer.
Professor Lionel B. Budden.
Mr. and Mrs. Arthur C. Bossom.
The Earl of Crawford and Balcarres.
Major and Mrs. Hubert C. Corlette.
Mr. Donald Cameron.
Mr. W. E. Vernon Crompton.
Lt.-Col. H. P. Cart de Lafontaine.
Mr. Hugh Davies (Board of Education).
Mr. Arthur J. Davis.
Mr. Adrien Delpy.
Professor Franz Drobny.
Mr. E. H. Evans.
Sir Banister and Lady Fletcher.
Mr. and Mrs. Henry M. Fletcher.
Mr. J. Leighton Fouracre.
Mr. J. Alfred Gotch (President, Royal Institute of British Architects).
Mr. Cass Gilbert.
Mr. and Mrs. W. Curtis Green.
Mr. and Mrs. E. Stanley Hall.
Mr. Arthur J. Hope.
Mr. Alfred Haworth.
Mr. and Mrs. Stanley Hamp.
Professor A. M. Hind.
Mr. W. A. Harvey.
Mr. Vladimir Jezek.
Mr. Francis Jones.
Mr. and Mrs. Gilbert Jenkins.
Mr. C. H. James.
Mr. and Mrs. Arthur Keen.
Mr. Walter M. Keesey.
Mr. and Mrs. H. V. Lanchester.
Professor E. Lallerstedt.
Sir Edwin Lutyens.
Mr. Ian MacAlister (secretary, Royal Institute of British Architects).
Mr. Oswald P. Milne.
Sir T. Morison (principal, Armstrong College, Newcastle-on-Tyne).
Mr. Ellis Marsland.
Professor A. Wellesley McConnell.
Mr. and Mrs. Gerald Moira.
Mr. K. Murray.
Mr. Claude Miller.
Mr. E. C. P. Monson.
Mr. Joseph C. Miller.
Mr. and Mrs. Neville Minchin.
Professor Everett V. Meeks.
Mr. and Mrs. Newbolt.
Mr. W. Hilton Nash.
Mr. Basil Oliver.
Professor Ragnar Ostberg.
Mr. G. D. Oliver and Miss L. Oliver.
Professor P. Muguruza Otano.
Mr. E. J. Partridge (President, Society of Architects).
Mr. W. S. Purchon (Technical College, Cardiff).
Sir Cooper Perry (University of London).
Mr. W. L. Plack (President, Penns. Chapter, American Institute of Architects).
Professor C. H. Reilly.
Mr. Howard Robertson.
Mr. J. H. Somaké.
Sir John W. Simpson.
Mr. L. S. Sullivan.
Sir Amherst Selby-Bigge (Board of Education).
Dr. Walter Scton.
Mr. Evelyn Shaw.
Mr. and Mrs. Hurst Seager.
Sir John Sulman.
Mr. Charles F. Skipper.
Mr. and Mrs. J. C. Squire.
Professor H. K. Stabell.
Mr. A. J. van der Steur.
Dr. D. F. Slothouwer.
Professor Antonio Sciortino.
Mr. Jesper Tvede.
Sir Brumwell Thomas and Miss Thomas.
Mr. W. Harding Thompson.
Mr. B. W. R. Thomas.
Mr. and Mrs. Percy B. Tubbs.
The President, Société des Architectes Diplômés par le Gouvernement, Paris.
The President, Royal Hibernian Academy.
Mr. and Mrs. R. Unwin.
Mr. Frank Verity.
Professor J. Hubert Worthington.
Mr. Edward Warren.
Mr. Paul Waterhouse.
Mr. and Mrs. Septimus Warwick.
Sir Charles and Lady Walston.
Mr. Maurice E. Webb.
Mr. Thomas Wallis.
Mr. Arthur F. Wickenden.
Mr. and Mrs. Herbert A. Welch.

List of those Attending the Garden Party at Grosvenor House. Tuesday, July 29.

Mr. Joseph Addison.
Mr. and Mrs. H. V. Ashley.
Professor S. D. Adshead.
Mr. McArthur Butler.
Mr. and Mrs. Bucknell.
Mr. M. S. Briggs.
Sir John Burnet.
Mr. and Mrs. T. P. Bennett.
Mr. John Begg.
Mr. and Mrs. Bettany.
Mr. Robert Boker.
Professor Lionel B. Budden.
Mr. and Mrs. Alfred C. Bossom.
Mr. and Mrs. Chalton Bradshaw.
Mr. and Mrs. C. H. Brodie.
Mr. and Mrs. Carl Brummer.
Mr. Walter Cave.
Major H. C. Corlette.
Mr. Donald Cameron.
Mr. and Mrs. Norman Culley.
Mr. W. R. Davies.
Monsieur Adrien Delpy.
Monsieur and Madame Defrasse, and son.
Mr. H. A. Douglass.
Professor Franz Drobny.
Mrs. and Miss de Winton.
Mr. H. Davies.
Major T. Gerard Davidson.
Sir Banister and Lady Fletcher.
Mr. Henry M. Fletcher.
Mr. Theodore Fyfe.
Mr. J. Leighton Fouracre.
Mr. G. Topham Forrest.
Mr. C. Lovett Gill.
Mr. and Mrs. A. E. Gurney and Miss Gurney.
Monsieur and Madame Girault.
Mr. Stanley Hamp.
Mr. and Mrs. E. Stanley Hall.
Professor and Mrs. Hind.
Mr. Arthur J. Hope.
Mr. William Haywood.
Professor R. G. Hatton.
Mr. Francis Jones.
Mr. Vladimir Jezek.
Mr. and Mrs. Arthur Keen.
Mr. and Mrs. Sydney Kitson, and Miss Kitson.

Mr. Vivian H. King.
Mr. H. V. Lanchester.
Professor E. Lallerstedt.
Mr. Ellis Marsland.
Mr. Frank Marshall.
Mr. E. C. P. Monson.
Mr. T. R. Milburn.
Mr. H. I. Merriman.
Mr. Alan E. Munby.
Mr. F. C. Moscrop-Young.
Mr. W. G. Newton.
Mr. W. Hilton Nash.
Mr. and Mrs. H. Bryant Newbold.
Professor P. Muguruza Otano and family.
Mr. Basil Oliver.
Mr. G. D. Oliver and Miss L. Oliver.
Professor Ragnar Ostberg.
Mr. W. S. Purchon.
Sir Cooper Perry.
Mr. E. J. Partridge.
Mr. J. Herbert Pearson.
Mr. and Mrs. J. A. Pearce.
Professor C. H. Reilly.
Mr. and Mrs. S. C. Ramsey.
Sir John W. Simpson.
Dr. W. Seton.
Sir John Sulman.
Mr. C. F. Skipper.
Mr. and Mrs. J. C. Squire.
Mr. and Mrs. Leonard Stokes.
Mr. J. Swarbrick.
Mr. and Mrs. Arthur Sturge.
Mr. Walter Tapper.
Sir Brumwell Thomas.
Mr. Charles Trevelyan.
Mr. W. Harding Thompson.
Captain and Mrs. B. S. Townroe.
Mr. and Mrs. Francis R. Taylor.
Mr. Frank Verity.
Mr. Maurice E. Webb.
Mr. and Mrs. Septimus Warwick.
Sir Charles and Lady Walston.
Mr. Arthur F. Wickenden.
Mr. Thomas Wallis.
Mr. Paul Waterhouse.
Mr. P. J. Waldram.
Mr. Herbert A. Welch.
Mr. F. N. Weightman.
Major and Mrs. W. E. Watson.
Mr. Ian MacAlister.
Mr. Everard J. Haynes.

Correspondence

The Double Staircase

To the Editor of THE ARCHITECTS' JOURNAL.

SIR,—Those of your readers who have taken part in the recent correspondence on "double" staircases will no doubt be interested in the following extract from Isaac Ware's translation of Palladio's "First Book of Architecture."

"Another beautiful sort of winding stairs was made at Chambor (a place in France) by order of the magnanimous King Francis, in a palace by him erected in a wood, and is in this manner: there are four staircases, which have four entrances, that is, one each, and ascend the one over the other in such a manner, that being made in the middle of the fabrick, they can serve to four apartments, without that, the inhabitants of the one go down the staircase of the other, and being open in the middle, all see one another going up and down, without giving one another the least inconvenience; and because it is a new and beautiful invention, I have inserted it, and marked the staircases with letters in the plan and elevation, that one may see where they begin, and how they go up." The brackets are not mine.

The reference is, of course, to the Château de Chambord (A.D. 1526), by Pierre Nepoen. The same writer gives the credit for the invention of the "double" staircase to the Romans. "Those were also very magnificent that are at Santo Apostolo in the said city [Rome], and go up to Monte Cavallo [Monte Quirinale]: those staircases were double, from which many have since taken example, and did lead to a temple placed on the top of the mountain."

WILLIAM W. WOOD.

[This correspondence is now closed.—Editor A.J.]

The Architectural Association Scholarships and Prizes

Public-school entrance scholarship, value £63, J. A. Ritchie (Charterhouse); open entrance scholarship, value £63, D. R. Burles, Municipal School of Arts and Crafts, Southend-on-Sea; A.A. essay prize, open to all students, value £10 10s., R. F. Orfeur.

First-year Course.—First prize, "Howard Colls" travelling studentship, value £15 15s., H. H. Goldsmith; second prize, books, value £5 5s., L. H. B. Roberts; art subjects, value £3 3s., H. H. Goldsmith; general progress, books, value £2 2s., H. Cholmondeley.

Second-year Course.—First prize, A.A. travelling studentship, value £26 5s., J. Breakwell; second prize, books, value £10 10s., W. R. Brinton; hon. mention, C. Green and J. V. Hamilton; art subjects, books, value £5 5s., J. Breakwell; hon. mention, Miss N. Nickalls; general progress, books, value £3 3s., D. C. Saunders; scholarship tenable for one year in third-year course, value £63, C. W. Sully.

Third-year Course.—Holloway scholarship, tenable for two years, value £300, D. H. Beaty-Pownall; first prize, "Henry Florence" travelling studentship, value £50, R. C. Erith; second prize, books, value £21, W. E. Trent; third prize, books, value £15 15s., Mrs. B. S. H. Fisher; general progress, books, value £5 5s., E. F. Goldsmith; "Alec Stanhope Forbes" prize for best colour work during the year, books, value £5, R. C. Erith.

Fourth and Fifth Years.—Design: first prize, value £6 6s., E. W. Lewis; second prize, value £4 4s., Miss A. Sleigh. Town planning: first prize, value £6 6s., Miss E. Moseley; second prize, value £4 4s., T. S. Barnes. Construction: first prize divided, value £5 5s. each, Miss E. Scott and Miss E. Meikle. Decoration: first prize, value £6 6s., E. W. Lewis; second prize, value £4 4s., F. E. Bennett.

Architectural Association Diploma.—On satisfactory completion of five years' school course, and a period of six months' office experience: T. S. Barnes, R. E. Enthoven, L. R. Hiscock, J. K. Parker, W. Percik, G. W. Silk, Miss E. Scott, Miss J. E. Townsend. The following students have qualified for the diploma subject to completion of six months' office experience: H. Braddock, G. G. Grant, Miss A. F. Jones, Miss E. Meikle, Miss E. Moseley, D. F. Martin Smith, H. A. Pakington.

Medal presented annually by the Société des Architectes Diplômés par le Gouvernement to the best diploma student of the year.—R. E. Enthoven.

R.I.B.A. "Henry Jarvis" scholarship, value, £50, J. W. Wood; hon. mention, F. L. Preston.

Architectural Association measured-drawing prize, for the best set of measured drawings submitted in the school, value £10 10s., H. H. Goldsmith.

A.A. Design Club prize, value £5 5s., G. H. R. Heritage.

"Architectural Review" prize for the best holiday sketch and sheet of details, prize divided, value £5 5s., W. R. Brinton and C. E. Green.

St. Bartholomew's Hospital

Last April Mr. Paul Waterhouse was appointed honorary consulting architect to St. Bartholomew's Hospital. This appointment does not imply either that the Governors of the hospital are generally in favour of endeavouring to obtain architectural advice free, or that Mr. Waterhouse considers that hospital architecture should go unpaid. The explanation is a simple one. Mr. Waterhouse was invited earlier in the year to advise as a paid consultant. He considered, however, that the nature of certain advice which he had previously given in the capacity of president of the Royal Institute of British Architects, together with certain considerations in relation to brother architects, would render a paid appointment liable to misunderstanding, and possibly to embarrassment. He, therefore, accepted the suggestion of the Hospital Board that he should join them as a Governor and under the name of honorary consulting architect take part in the Board's consideration of the work in which professional architectural advisers may in due course be engaged.

List of Competitions Open

Date of Delivery.	COMPETITION.
Sept. 1	Entertainment hall for the Bexhill Corporation. Premium £50 and £25. Apply Town Clerk, Bexhill. This competition is open only to architects in the district.
Sept. 30	The Hamilton War Memorial Committee invite designs for the proposed war memorial to be erected in the Public Park. The estimated cost of the memorial will be £2,000. Premiums £60, £40, £20, and £10. Mr. G. A. Paterson, President of the Glasgow Institute of Architects, will act as Assessor. Apply, with deposit of £1 1s., to Mr. P. M. Kirkpatrick, Town Clerk, and Clerk to the Committee, Hamilton.
Sept. 30	Designs are invited for a statue in bronze and a pedestal (at a cost of about £5,000) in honour of the late Sir Ross Smith, K.B.E. Apply The Agent-General for South Australia, Australia House, London.
Sept. 30	Competitive designs are invited for a Memorial Club House and Pavilion to be erected on the ground of the Glasgow High School Club at Anniesland, Glasgow. The competition is confined to former pupils of the High School of Glasgow. Apply Mr. Hugh R. Buchanan, Hon. Secretary, Glasgow High School War Memorial Committee, 172 St. Vincent Street, Glasgow.
Sept. 30	The Committee of the Harrogate Infirmary invite designs for the extension of the infirmary by the addition of 67 beds. Application had to be made by May 31.
Sept. 30	The Newton-in-Makerfield Urban District Council invite designs for Public Baths. Premiums £150, £50 and £25. Assessor Mr. Arnold Thornley, F.R.I.B.A. Application had to made to Mr. C. Cole, Clerk to the Council, Town Hall, Earlestown, Lancashire, not later than July 25.
No Date	Memorial to the Missing at Cambrai and Soissons. Apply The Secretary (Works), Imperial War Graves Commission, 82 Baker Street, W.
No Date	The United Grand Lodge of England invite designs for re-building the Freemasons' Hall in Great Queen Street, Kingsway, London. Apply, with deposit of one guinea, to the Grand Secretary, Freemasons' Hall, Great Queen Street, London, W.C.2. The envelope should be marked "M.M.M. Competition."

The Week's News

Public Baths for Deptford.

Deptford Council propose to build public baths in the North Ward costing £70,000.

Proposed Residential College.

A proposal has been made to erect a women's residential college in connection with the Durham Colleges.

Strand Widening Scheme.

An L.C.C. Committee recommends the buying of property for £450,000 between George Court and Villiers Street, to widen the Strand.

Birmingham Relief Schemes.

Birmingham Corporation has prepared relief schemes involving a total cost of £1,739,000, including the construction of a £500,000 reservoir.

Nation's Art Critic.

The Royal Fine Arts Commission for England will shortly present as its first public document a report on the artistic qualities of the proposed St. Paul's Bridge.

Hospital Extension at Richmond.

Richmond Rural Council passed plans for an extension of Scorton Hospital, and a committee was appointed to obtain information regarding housing proposals.

Coal Firm's House Enterprise.

The Weardale Coal and Iron Co., Spennymoor, are erecting 125 houses at Thornley, several of which are ready for occupation. Arrangements are also being completed to build seventy-five houses at Wheatley Hill, and sixty at Deaf Hill.

L.C.C. Estate at East Hill.

Contract particulars for the foundations and ground work for the first five blocks of dwellings to be built by the L.C.C. on the East Hill Estate, Wandsworth, are nearly completed. The cost will be about £10,400.

Selby War Memorial.

The committee, out of five sets of plans submitted by architects for the proposed new War Memorial Hospital, have resolved to adopt that submitted by Mr. Leslie T. Moore, of London.

Restoring St. George's Chapel.

The work of restoring the roof of the Choir of St. George's Chapel, Windsor Castle, has been in progress for over two years. Some difficulty has been experienced in raising the large sum of money required, but there is reason to believe that a sufficient sum is now forthcoming to complete the work.

New Memorial Church at Castleton.

The foundation-stone of a new memorial church at Castleton has been laid by Viscount Downe, who gave the site and stone, in addition to a monetary contribution. The building fund amounts to £5,000. Messrs. Temple, Moore and Moore, of London are the architects.

War Memorial Pavilion at Grove Park.

The City of London Schools Committee is proposing to erect a war memorial pavilion on the new athletic ground at Grove Park, at a cost not exceeding £12,000, and a further sum of £1,760 on an approach road thereto. The total cost of the memorial and the athletic ground will be about £23,425. The architect will be Mr. Ralph Knott, an Old Boy.

Town Planning in the Midlands.

At the initial meeting at Wolverhampton of the Group Committee of the Wolverhampton area under the Midland Joint Town Planning and Advisory Council, Councillor J. K. Hunt (Wolverhampton) was elected chairman, and approval was given to the principle of appointing a Surveyors' Advisory Committee, after a statement by the honorary surveyor, Mr. Herbert H. Humphries.

An Old Poole Building To Go.

An old Tudor building at Poole, probably used in the fourteenth century by the Guild of St. George or Guild of Merchants, is in danger of demolition in consequence of the Borough Council's refusal to restore it. The names of Cromwellian soldiers, with dates inscribed on a fireplace, is one of many interesting features of the building, which was recently condemned for human habitation and partly demolished.

The National Gallery.

The characteristic work by Murillo representing "The Immaculate Conception," which was bequeathed to the nation by Mr. J. Trueman Mills, has now been placed on exhibition in room XVIII at Trafalgar Square. In room IX will be found the "Repose in Egypt," by Adrian van der Werff, which has been recently acquired by the trustees, out of the Florence Fund.

What Housing Bill May Cost Glasgow.

The Glasgow City Chamberlain has issued a report to the Corporation on Mr. Wheatley's Housing Bill, which states that Glasgow will be required under the measure to build 105,000 houses in fifteen years. While the cost is problematical, he says it is not likely to be less, including the purchase of land, than £550 per house, thus involving an outlay of nearly £58,000,000 sterling, or equivalent to an extra 8d. per pound on the rates.

"Overseas Trade."

His Majesty's Consul-General at Amsterdam (Mr. H. Tom, M.B.E.) reports a call for tenders for the supply of a portable structure to be used as an opera and exhibition hall in connection with the International Tobacco Exhibition to be held in Amsterdam in May, 1925. United Kingdom firms in a position to supply British materials can obtain further particulars on application to the Department of Overseas Trade, 35 Old Queen Street, London, S.W.1, quoting reference A.X.1188.

Notes from the Minutes of the R.I.B.A. Council Meeting, July 21, 1924.

Institute of Public Lighting Engineers and Superintendents.—Mr. John Keppie (F.) and Mr. James Lochhead (F.) have been appointed to represent the R.I.B.A. at the first annual meeting and conference of the Institute of Public Lighting Engineers and Superintendents.

Reinstatement.—The following have been reinstated: as Fellow, Mr. C. H. Heathcote; as Associate, Mr. Frank Granger; as Licentiate, Mr. Percy G. Overall.

Scarborough.

The Scarborough Town Council have under view the remodelling of the aquarium. Sketch plans have been prepared, and the estimate for the whole scheme comes to £104,000, made up as follows: a bath establishment, including medical bath, £20,000; Turkish baths, £4,000; slipper baths, £1,600; two swimming baths, £14,050; a concert hall, £20,000; café and shop, £7,500; public lavatories, £1,800; a beach bathing establishment, £5,500; other work, £29,500.

London's New Town-Planning Scheme.

A town-planning scheme for South-East London has been approved by the London County Council. A special committee reported that the area of 7,150 acres was situate within the boroughs of Woolwich, Greenwich, and Lewisham, and contained the largest and most compact portion of the undeveloped land in the County of London. Approximately it is bounded by the Shooter's Hill Road on the north and the Bellingham estate and Bromley Road on the south-west. Consent to the scheme must be given by the Minister of Health.

Concrete Houses at York.

Members of the York Housing Committee have inspected concrete houses built for the Leeds Corporation on the Meanwood estate, and the City Council are recommended to authorize the committee to arrange for the erection of 300 houses of the concrete type, or any other type of construction upon which they may decide, on the Tang Hall estate, and to empower them to take the necessary steps to obtain the approval of the Minister of Health, and possession of the land required and to advertise for tenders for the carrying out of the work.

Manchester Architect Dead.

Capt. Frank A. Brewerton, the well-known Manchester architect, has died at his home at Woodlands, Whalley Road, Whalley Range. He was an officer in the Territorial Army, and while at Chatham training for the post of major, was attacked by pneumonia. On the outbreak of the war he joined the Regular Army, being severely wounded in the last big attack at Roisel in 1918. He was awarded the Military Cross for conspicuous gallantry in the field. Capt. Brewerton, who was thirty-six years of age, and single, was an Associate of the Royal Institute of British Architects, and a Fellow of the Surveyors' Institute.

Business Appointment.

Sir Edward Anson, Bart., has joined the Board of the Birmingham Guild, Ltd. In conjunction with Mr. C. A. Ll. Roberts he will direct the business of the company in London at 28 Berners Street, W.1.

Building Science and Art.

An appeal is about to be made by the Institute of Builders for the formation of a Chair of Building Science and Art at the University of Cambridge. In order to start this the sum of at least £25,000 will be needed. It is expected that this will be the first Chair of Building in the United Kingdom, and in view of the developments that are taking place in possible methods of new construction, and the increasing complexity of the activities of the industry, there is a growing need for men with special technical and scientific attainments to deal with the problem.

L.C.C. Architect to Visit America.

The London County Council, at its meeting on July 29, decided that its architect, Mr. G. Topham Forrest, should visit America in the early autumn of this year in connection with the suggested amendment of the London Building Acts and the revision of the regulations with respect to the construction of buildings, wholly or partially, of reinforced concrete.

The Building Acts Committee expressed the opinion that in the public interest the Council should have the most up-to-date information and advice upon modern methods of construction, particularly in regard to buildings of reinforced concrete and steel-framed construction, and they therefore considered that the architect should visit America to investigate and report upon the subject.

London's Richness in Architecture.

Mr. J. Wells, Vice-Chancellor of Oxford University, speaking at the distribution of prizes at Dulwich College, said London could show more of the developments of British art and architecture than any other city in the world. There were many who considered that Oxford and Cambridge were the two most perfect cities, architecturally, in Great Britain. But he was not so sure that, to use a sporting phrase, London could not produce a better team of architectural monuments than either Oxford or Cambridge.

Building Education in Yorkshire.

The Yorkshire Educational Association for the building industry held its first annual outing at York. An attractive programme was arranged, and this, together with the good attendance of members and their friends, helped to make the experiment a highly successful one. The executive meeting and the general meeting were held in the historic oak-panelled room adjoining the Guildhall. The President, Councillor Reeves Charlesworth, F.I.O.B., of Sheffield, referred to the efforts which the association had made during the past year to assist in improving the work now being done in the technical schools in Yorkshire, and in bringing that work to the knowledge of the building industry in the same county. On several issues they had been able to record definite and satisfactory progress.

L.C.C. and Housing Bill.

In view of the progress of the Housing Bill in Parliament, the London County Council Housing Committee have asked the Council to authorize them to take the necessary preliminary steps to proceed with the construction of 20,000 houses, as and when opportunity affords and supplies of labour and materials are available. For this purpose they will submit a capital estimate of £500,000, and for expenditure likely to be incurred in the current financial year a further estimate of £50,000. The committee point out that, even if the "all in" cost of providing a house be taken at £600, the construction of 20,000 houses may be put at a capital cost of £12,000,000, and with an annual loss strictly limited to £4 10s. per house the burden to the rates would amount to £90,000 a year for forty years.

It is also proposed to proceed with the further development of the Ilford section of the Becontree estate, and to erect thereon 894 houses. The expenditure is estimated at £521,850.

Inventor of Portland Cement.

The American Portland Cement Association is to erect a bronze tablet in Leeds to the memory of Joseph Aspdin, a bricklayer of Leeds, who in 1824 patented a formula for a material which, when hardened, resembled a stone found on the Isle of Portland. This ultimately became the now famous Portland cement. The tablet will bear the following inscription :—

"In memory of Joseph Aspdin, of Leeds, bricklayer, 1779–1855, whose invention of Portland cement, patented October, 1824, and followed by a century of improvements in its manufacture and use, has made the whole world his debtor. This tablet was presented by the American Portland Cement Association, on the occasion of the United celebrations with the British Cement Makers' Federation of the centennial of the invention, October, 1924."

If the tablet is accepted by the Leeds authorities, the unveiling will take place on September 6, when a number of American representatives will be present.

Paisley War Memorial

This memorial (see frontispiece) is erected at The Cross, Paisley, and was unveiled on Sunday, July 27. The design is by Sir Robert Lorimer, A.R.A., R.S.A., of Edinburgh, who is also the architect for the completion of Paisley Abbey. The sculptor of the bronze group is Mrs. Meredith Williams, of Edinburgh, and the casting of the group was executed by Messrs. J. Singer and Sons, Ltd., Frome, Somerset. The builders were Messrs. Neil McLeod and Sons, Ltd., and the carving was carried out by Messrs. Allen and Sons, both Edinburgh firms. Mr. John Wornell (clerk of works, Paisley Abbey) acted as clerk of works.

The pedestal, wing walls, and paving are of granite from the Shap Fells, Westmorland, supplied by the Shap Granite Co., Ltd. The total weight of granite is 228 tons, and the bronze group weighs 4½ tons.

New Inventions

Latest Patent Applications.

17058.—Attride, A.—Reinforced-concrete building blocks. July 16.

17258.—Bartley, W. E.—Brick-laying apparatus. July 18.

17243.—Brownlow, H. H.—Building-blocks. July 18.

17177.—Fiorenzi, U.—Building-materials, and machine for preparation thereof. July 17.

16897.—Heidet, A.—Scaffolding, &c. July 14.

17124.—Holloway, F. W.—Concrete building-blocks, &c. July 17.

17241.—Osment, L.—Building with blocks or bricks. July 18.

17313.—Taylor, J. W.—Tie bar and stirrup for reinforced-concrete structures. July 19.

17019.—Whipp, R. C.—Building-blocks and method of laying them. July 16.

Specification Published.

218537.—Baude Freres et Cie.—Means or devices for securing tiles and the like on roof and other structures.

Abstract Published.

216681.—Public Baths.—Davenport, J. A., 22 Prescot Drive, Fairfield, Liverpool.—A swimming bath is surrounded by a path divided into two parallel portions and by a rail, the inner path being used by undressed swimmers only. A discharge chamber is provided under the bath, or to one side, at a lower level than the bath and subways are also provided to afford easy access to the pipes and connections. Galleries with seats are fixed around the bath and these are supported by standards and cantilevers. The top of the gallery projects outwardly beyond the face of the building and where another bath is adjacent projects into the space of this bath. The bath may be converted into a concert hall, for which purpose removable seats are provided to come over the dressing rooms and are supported on the path. The seats may be hinged to the upper seats and may be turned back on them when not in use.

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.

Coming Events

Tuesday, August 12.

British Empire Exhibition.—Conference on Illuminating Engineering. 2.30–5.30 p.m.

The British School at Rome.

The designs prepared by the candidates who competed in the final competition for the Rome scholarship in architecture, 1924, and the R.I.B.A. Henry Jarvis studentship, 1924, will be on exhibition in the R.I.B.A. galleries from Tuesday, August 5, to Friday, August 15, inclusive, between the hours of 10 a.m. and 6 p.m. (Saturdays 1 p.m.).

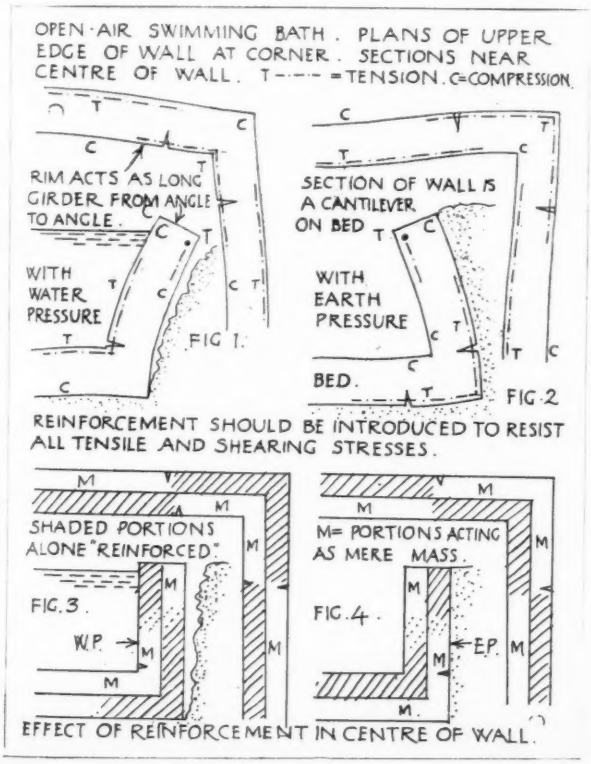
Enquiries Answered

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.

OPEN-AIR SWIMMING-BATH.

"Ewell" writes: "In constructing an open-air swimming-bath of reinforced concrete lined with white glazed bricks, should the reinforcement be placed nearer the inside or the outside? In other words, is the pressure of the water greater than the pressure of the surrounding earth, or vice versa? I saw a bath being made recently in which the reinforcement was placed centrally and vertically, which did not appear to me to serve any useful purpose. I should be obliged if you could give me your views on the subject, or refer me to some work that deals with the matter."

—Both the pressure of the water and of the sliding wedge of earth must be taken into account in the building of what is really a combined retaining wall and dam. Whether in practice the water-pressure would be greater than the earth-pressure, or vice versa, at any given point at a given moment would depend on such extraneous considerations as the wetness or dryness of the surrounding ground. The sliding earth might act effectively against the water-pressure so long as it was saturated, swollen, and slippery after rain, and then withdraw its support from the wall of the swimming-bath when contracted by settlement and fissured by heat and drought. It would be highly imprudent to attempt to strike a balance between earth and water-pressure and only provide a retaining wall capable of resisting the difference! The water presumably will be drawn off periodically in cleaning the bath, and the earth-pressure will then only be resisted by the strength of the wall. Leakage will occur before the absolute failure of the wall, and will take place in response to minor cracks resulting from slight, and possibly structurally insignificant, movements, especially if these are often repeated.



(See answer to "Ewell.")

The position of the reinforcement must conform to the general rule that steel is required where it will take up tensile stress and assist the other parts of the structure to act efficiently in compression. Actually the position will be determined by the shape of the swimming-bath considered (*a*) as a tank liable to collapse outwards, (*b*) as a mutually buttressing system of retaining walls liable to overturn towards the interior of the enclosed space.

Taking a circular shape for the swimming-bath, and supposing the walls to be relatively thick in proportion to the diameter, the whole circuit may be supposed to act together with the greatest tension on the outside of the wall when subjected to water-pressure. Considered as a retaining wall the circular shape would eliminate principal tensile stresses if the earth-pressures were uniform from all sides towards the centre. This would be a dangerous assumption to make, for a soft place in the surrounding earth would invite a corresponding bulge in the wall of the bath and a consequent flattening of the sides at other parts of the wall.

With a plan of any other form than the circular the analytical division of the structure into its compressional and tensional components would be still more complex.

A swimming-bath square on plan would be liable to failure under water-pressure by the outward bulging of its walls in the centres of their length, while the tops of the corners might even be drawn inward slightly towards the centre of the tank. Unless cracks actually developed at the corners of the square, an improbable contingency where they are suitably reinforced, the curve of each side wall would include points of contrary flexure, and the line of maximum tension would change from inside to outside at these places (see plan, Fig. 1). The reinforcement would necessarily cross the wall in response to these conditions if maximum efficiency were to be obtained. Reinforcement would also have the function of uniting each wall with two return walls at the corners, and should be disposed in such a manner as to perform this satisfactorily. Under the pressure of earth alone these conditions would be considerably affected. The corners of the square might still be pressed slightly in at the tops, but the walls would bulge inwards instead of outwards at their centres. The points of contrary flexure would be in approximately the same places as for water-pressure, but the concave and convex curves would be transposed (see plan, Fig. 2).

Secondary tensile stresses would also be induced at the foot of each wall, particularly at the centre of its length. These would be internal in the case of water-pressure, and external in the case of earth-pressure (see sections 1 and 2). To meet these different alternative conditions two courses are possible.

1. The work may be supplied with reinforcement near both faces. In this case the reinforcement on one face would be standing idle as far as tension is concerned during certain conditions of loading, but the whole strength of the concrete might be developed by the reinforcement under all conditions. In a deep and large bath this course should be adopted.

2. In a smaller and shallower bath where great pressures are not likely to be developed, the provision of reinforcement in the centre of the wall is not altogether unreasonable.

The greater part of the reinforcement would be taking tensile stress under most conditions of loading, though the strength of the concrete wall as a whole would not be fully developed by it at any one time. All parts would be

used alternatively, however, and portions not developed to the full as reinforced work would still be useful as mass (see Figs. 3 and 4). The steel would also be well protected from moisture.

The gravest objection to the central position for reinforcement is the difficulty of providing against shearing stresses, particularly at the foot of the wall and at the points of contrary flexure in its length. As the stresses are likely to be applied in varied intensity, first from one direction and then from the other, movements, fractures and leaks are to be expected in the long run at these points unless adequately designed shear members are introduced or the whole wall is increased in bulk. Where the length of wall is great the value of its return ends considered as buttresses or anchor-holds would be decreased, and the central parts of the wall would have to be calculated as retaining walls and dams of unlimited length. The section of the wall would have to be correspondingly strengthened with reinforcement placed to meet all possible conditions of loading.

The subject of retaining walls and dams of reinforced concrete is discussed at length in (f) Part 2 of "W. H. Warren's Engineering Construction" (Longmans).

WILLIAM HARVEY.

A SEPTIC TANK FOR A COUNTRY HOUSE.

"A. R." writes: "I have been under the impression that the usual system for a country house of about six to seven persons was to have:

"(1) A sealed tank where 'anaërobic bacteria' broke up solids.

"(2) A second compartment where 'aërobic bacteria' carried on the good work.

"(3) A filter-bed of clinker, open to the air, the final effluent from which could be discharged into active top-soil by about three short lengths of pipe.

"Nowadays one sees systems illustrated with only one chamber and a filter-bed, and I don't know whether the 'anaërobic' and 'aërobic' idea has been superseded or not, and if not, what is the best design?

"Can you also give me any formula for deciding the appropriate size of the chamber in relation to the number of the people in the house?"

—The principle of sewage treatment by means of the septic tank depends upon the breakdown of solids by the anaërobic bacteria, and the oxidation of the resulting liquid by the agency of aërobic bacteria. Both processes are necessary, though recent installations have sometimes been made without an intermediate tank. The different practices in using one tank or two are due to secondary considerations, which do not vitally affect the system.

The first chamber in which the breaking down of the solids is carried on by anaërobic bacteria (bacteria living in the dark without air) is simply a cesspool, and is rightly called a septic or poison tank. Its contents, originally foul, are undergoing putrefaction, not purification, and emit noxious gases in the process. To transform the putrefied contents of the poison tank into a comparatively inoffensive liquid fit for subsoil or surface irrigation, they are submitted to the oxidizing influences of aërobic bacteria—(bacteria living in light and air)—and, if no other considerations existed, this work would be best performed forthwith in the open air.

Advocates of the system embodied in the single tank and filter-bed claim that these two pieces of apparatus act as effectively as the three-piece plant, and that in getting the liquid directly into the air and the daylight they are gaining in simplicity and speed of action. The question is affected, however, by the possible nuisance arising from the smell of the liquid upon leaving the poison tank, and also by exposure to variable weather conditions. The intermediate aërobic tank was designed, and is still frequently used, to meet these difficulties. In the two-unit scheme, the alternative practice of covering the filter-bed is sometimes adopted with similar ends in view.

However these concessions to human sense of fitness are managed, it is essential that air should be freely admitted to contact with the sewage to oxidize it after it has been broken down to liquid form. This is performed by applying the liquid to the upper surface of the filter-bed by means of a distributor, which allows it to escape from the overflow of the poison tank on to the filter in many small dribbling streams, each exposed as completely as possible to the action of the air. The liquid is then allowed to percolate downward through the filtering material to an outlet communicating with the irrigation channels, ditch, or soakaway, whichever is used to dispose of it.

There can be no universally applicable "best design" for a septic tank, as the conditions of installation are far too variable to admit of complete standardization. The size and position of the site for tank and filter-bed, their nearness to inhabited buildings, the fall of the ground, the exposure to sunlight and the protection likely to be afforded by foliage during summer and winter, and the direction of the prevailing wind should be considered as well as the more direct factors such as the number of persons provided for and the separate provision of rain and surface water, apart from the septic tank.

Makers of septic tanks are willing to advise on such matters and produce a different combination for each particular case. The size of the installation must also vary considerably according to varying circumstances, but the cubic capacity of a tank to deal with the sewage for a family of six persons has been quoted as low as 35 cubic feet, where no rainwater, stable drainage, or garage washing water is connected to the soil drains.

The filter-bed to deal with the liquid from the tank might be from 4 to 7 cubic yds. in contents, according to the requirements of the case.

The cost of a scheme for a six-person household might be anything between £65, where conditions are favourable, to £165, where they are not. A large open site, where no special methods of covering or enclosing the filter-bed are required and where a naturally absorbent subsoil provides a ready means of disposing of the effluent, would be considered favourable.

The rights of neighbours to fresh air free from unpleasant scents, or the necessary and proper restrictions as to ideal purity of effluent in the near neighbourhood of sources of drinking water, would count as unfavourable conditions liable to make for additional trouble, special precautions and extra expense.

The amateur builder of septic tanks should choose a site free from the possibility of giving offence during his experiments, and should be guided by a sense of responsibility in handling poisonous material. Then, by attending to efficient aëration and downward filtration, he can improve very considerably upon an old-fashioned cesspool or leaching cesspool.

Where the site is confined, and a high standard of efficiency is demanded by any authority presiding over sanitation and water supply, it would probably be more economical to entrust a firm of experts with the work in the first instance.

W. H.

THE MANUFACTURE OF OVEN PIPES.

"F. H." writes: "What modern methods of casting oven pipes are in use, and how does this strengthen the pipe and reduce the weight?"

—The most modern methods of oven pipe construction avoid casting, oven pipes being now made in thick, welded, drawn steel.

W. H.

A FLOOR FOR A RIDING SCHOOL.

"T" writes: "I should be glad to know of a really satisfactory specification for riding school floors."

—The only satisfactory floor with which I am acquainted is beaten earth covered with a good thickness (not less than 9 in.) of ordinary tan.

G.