

PAGES

MISSING

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ILLUSTRATIONS ON SHEETS.

Plan of Macpherson Estate, Toronto.
Cottage at Victoria, B. C.—S. Maclure, Architect.
St. Mary's (Anglican) Church, Portage la Prairie.—H. S. Griffiths, Architect, Winnipeg.
House of J. W. Siddall, Architect, Toronto.
House in Victoria, B. C.—S. Maclure, Architect.

ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

Macpherson Estate, Toronto.—S. H. Townsend, Architect. View from North Side of Crescent Road looking East.
Macpherson Estate, Toronto.—S. H. Townsend, Architect. View from Crescent Road looking South to Cluny Ave.

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An Avenue of Sod.

A rather strange proposal has been made by a member of the Toronto Board of Control: to grass over the fine road, that leads to the Queen's Park and is the approach to the Parliament Buildings. The cause of this suggestion is the second road, University Street, which, in consequence of some early misunderstanding between the City and the University, runs along side of the Avenue. The proposal to adopt the side street as an approach, and leave the other as inexpressive as a walled up door, shows that it is just as well Mr. Spence is a controller, for as an artist he lacks imagination.

Overhead Tanks.

There will be a big spill some day from some of the sprinkler tanks that are set up on skeleton supports and left to the weather. Steel does not last forever; and, in the steel trestle work that usually carries these tanks, there are very slender members, which a little neglect could easily make too slender. And has there been enough consideration given to the effect of large fires upon the exposed steel? A little warping—a very little—and down comes the tank. However much comfort there may be for owners and underwriters in a 20,000 gallon tank propped up by steel, it must be a terror to firemen. Sprinkler tanks should rest on brickwork, and, for the sake of appearance, should be surrounded by brickwork. In other words a tank should imply a tower.

The Montreal Architectural Club.

The foundation of a club for architectural students is a good move on the part of the Province of Quebec Association of Architects. According to the newspaper report of the proceedings, in the

meeting at which the club was instituted, it is proposed to give instruction chiefly in design. It is an excellent idea to measure old buildings. They have old buildings in that province of which it is well worth while to preserve a record, and the building traditions are good and ought to be studied and find their place in work of the present day. But there is some drier work that the student will have to get hold of; and something in the way of the mathematical instruction that is carried on by the Ontario Association of Architects, in conjunction with the Eighteen Club, is desirable also. The unusual number of students who came up for the examinations of the Ontario Association, which are just finished, shows that this instruction is appreciated by the students and is doing good.

Frozen Mortar.

A New York architect, who was present at the Convention of the Ontario Association of Architects, told the members that there is practically no difference made now in New York between bricklaying in warm weather and in freezing weather. The fall of six buildings in New York, on the first warm day of spring, is the other side of the question. Fortunately the warm day was a Sunday, so that there was no loss of life; but the money value to the builders is estimated at from two to three millions of dollars. The buildings were all large; five and six storey "flathouses;" and in two cases the building that fell was part of a row built concurrently, so that the character of the rows (in one case consisting of eight six-storey flathouses) is in question. It is against the law in New York to use mortar in freezing weather; but the authorities say there are not enough inspectors to prevent it. The national conception of the virtue of haste must, in any

case, give the inspectors little heart in their work when it is a matter of holding back building.

American Plans.

Two new important buildings for Toronto have been put into the hands of United States architects; and the duty on plans is still collected on a valuation of the blue prints that come in, which is based upon the time supposed to be taken by the draughtsman in producing them. If there is to be a duty, it is not creditable that its collection should be made a farce like this. The government—not the present government but its predecessor—did acknowledge, at one time, that the thing imported is not drawings (and not blue prints) but services, and that the duty should be collected on the cost of the services to the importer.

The irritating point in the situation, to architects, is that the best architect in Canada would not be allowed to erect a hen-house in the United States. And another point, equally irritating, is that, where a United States architect is employed in Canada, he gets a much better chance in the way of expenditure than is given to a Canadian. His clients are, in fact, a good deal at his disposal. As they have sent to New York for an expert, it would be silly not to take his advice. The effect, no doubt, is to raise the high water mark of cost all round; but, in so far as that is a good thing, we ought to be able to find it out ourselves.

There is a bill before the New York Legislature to prohibit the use of advertising posters and paintings in all future subways. The bill has the entire approval of the public, we are told. Which proves one thing—that posters are not needed. A practical public, which objects to having posters where they can see them every day conveniently, is evidently quite satisfied that it can become acquainted with every article it needs without the help of posters, artistic or inartistic.

But this is only one step in the argument. Matter in the wrong place is dirt; and posters, in a place where they are not wanted by the people for whose benefit they are put up, can have no reason for being there but the advantage of the person who puts them up, and it becomes a very live question how far he has a right to make use of public places for pushing his own advantage—only his own—in this way.

Nor can he have any right to employ little boys, as he does, to throw papers on our lawns. If the little boys were to do this on their own account they would run away afterwards. Now they merely walk to next door and do the same. And the householder, who is equally injured in both cases, sees the law, which would be with him in the one case, is, in the other, with the boy, who is pursuing his lawful avocation. Why should there not be a law against dodgers as well as against posters? If they do any good to the advertiser it is only because they are so cheap that he can afford to have a thousand fluttering about the streets for one that is read. That is all very well; but can the rest of us afford to suffer from their unsightliness and to pay for their picking up?

Gibbon v. Pease.

The appeal in this case has been dismissed with such a decided opinion about the unreasonableness of any custom which allows an architect to retain possession of his plans that it is evident the Court of Appeal has done more than merely confirm the application of the precedent case of *Ebby v. McGowan*, in which, (a case of a building that did not go on), the architect was compelled to hand over his drawings, in order that the client might have, (as every commentator, if not the judgement, says), "something to show for his money." The case will, without doubt, go on to the House of Lords. If the judicial committee, who will take the broadest view possible to the legal mind in England, fail to support the architect's claim, the only thing left, to secure an architect's rights, is copyright. This would be so extremely difficult to carry out that the simpler course would be to start afresh and get legislation that will establish the architect as owner of his plans.

It is said that the American Institute of Architects, knowing the importance to the profession in the United States of the decision in this case, will offer to contribute to the cost of carrying the case to the House of Lords. The Quebec and Ontario Associations have even more reason to support the appeal, and, in spite of a tendency to deficit in their Treasurers' reports, would do well to support it with money.

In another column we reprint an article from the *Architectural Review* of Boston on this subject, in which the view is taken that an architect's drawings are like a legal document which, as the *Engineering Record* of New York said, in making the same comparison a little while ago, "unquestionably belongs to the client, although it represents the results of the lawyer's study and experience."

It is an extraordinary thing how impossible it is, for writers discussing this question, to keep things in their proper categories. Unless the writer in the *Architectural Review* is arguing that the matter for which the client employs an architect is the production of drawings, how can architectural drawings be compared to the draft of a legal document? The draft and the typed form are of one kind—documents. It is a document the client wants for himself, and it is for that he pays. But drawings and a house are of different kinds, and it is a house the client wants and pays for. If drawings were compared to a brief and the house to the argument in court, the comparison would be better. We may arrange the terms thus:—

INSTRUMENT OF SERVICE	SERVICE	END
Brief	Argument	A favourable judgement
Drawings	All the business involved in the process of erecting the house	The house

It only remains in order to complete the comparison, that we should give the architect's client possession of the architect's drawings at the same stage or condition of the proceedings at which the lawyer's client gets possession of the lawyer's brief.

THE DEVELOPMENT OF AN ESTATE.

The Macpherson Estate in Toronto is an example of how land can be made the most of for building purposes without sacrificing beauty, and how profitable it is to aim at beauty. The houses on this estate have always been sold as soon as built—usually before completion. The attraction is partly in the house itself and partly in the certainty that the still undeveloped portion of the district will be equally attractive, so that there is none of the risk which often attends building in a new neighbourhood.

This result has of course not been accomplished without thought, and the ideas and methods which are at the bottom of the estate's success, as gathered from the managers, Messrs. H. C. and A. E. Boulbee, are the subject of this article.

The first consideration in a residential quarter is to make the most of the natural lie of the land; to avoid levelling as much as possible, and cultivate variety. Little more than this was attempted at first in Crescent Road, the portion called the Macpherson Estate. There was a road cut, sloping from a hollow in Yonge Street to the higher level; and truly no opportunity so slight has ever been made more of. The road not only sloped from Yonge Street but was cut out of the side of a slope which, though very slight, caused the lots on the upper side to rise a little above the road. This small advantage was the original source of inspiration for the development of this estate in an unusual way, more agreeable than the ordinary. The differences in level necessitating approaches by means of steps in the slope, and the variation of these approaches due to contour and a pair of old trees, suggested an irregularity in the alignment of the fronts which has done more to make the picturesqueness of the Macpherson Estate than is generally supposed by people who have admired the prettiness of the cottages. Several houses, in the hands of one architect or conforming to a properly studied estate plan, can lie backwards and forwards of one another with great mutual advantage, getting better views and more light, sun, and air.

In addition to the placing of the houses, the first efforts of the agents for the Macpherson Estate were deeply concerned with roads and sidewalks. And here we may begin a more systematic study of the principles of planning exemplified in the development of this estate.

In a residential district the roads and sidewalks should not be too wide. The most that will be required from the width of a road is to let two carriages pass one another at a point where a third or a line of carriages is standing against one curb. For this 24 or 25 ft. would be enough. As two single carriages can move off a common axis, and a line of carriages is rare, the decision of the designers of the Macpherson Estate for a width of 20 ft. evidently suits best the balance of agreeableness, which is for a minimum of glaring road a minimum of dust and a minimum of cost to make and support. Automobile speeding is not desirable in a residential district and the roads need not be designed to suit its requirements. The roads should be macadamized. This is still the favorite form of road construction in London for the best neighbourhoods. A macadamized road is not noisy. If watered every day, it is not dusty, for it retains the effect of

watering for a longer time than asphalt or brick for the reason, (which is another of its excellences), that it is not so hot. Continuous asphaltting must contribute seriously to the heat of a city in summer. Macadam is less costly to make and less costly to keep up than other forms of roadway; and, which is not by any means the least of its advantages, it need not pass through a period of decline and shabbiness before it is renewed, but can be continually renewed, where it is beginning to fail, and need never be shabby at all. Finally, but not least in importance, macadamized roads have a natural colour and are pleasing to the eye.

Sidewalks should not be next to the road. There is a tendency in Toronto now to place them there. The reason is obvious: the boulevard takes the place of a lawn for the houses, and the building line advances in proportion and will without doubt, in small residential districts, ultimately reach the line of the street. Let it be so in these districts; if they must pack close to be cheap, let the street plan help them to any graces or comfort it can. But, when a property owner can buy enough land to free him on the sides, he ought to be able to free himself in front also by means of his own property. There is no occasion to invite him to lessen what he contributes to the spaciousness of the streets; nor is it right to make the street boulevard of more value to him than to the passers by, for whose use it is really intended. The use of the boulevard (speaking, as we are now doing, only of the single boulevard) is to keep foot-passengers away from the splashing, the dust and the danger of the roadway. A sidewalk next to the road exposes them unnecessarily to all these, and also, in summer, to the glare of the street, from which they should be cut off, walking behind the boulevard trees and getting the additional advantage for shade of whatever private trees there may be along the front of the lots. Two boulevards of course solve the question, where it is possible to consider perfection before expense; but, for the ordinary residence street, where, though beauty is a first necessity, it must be got at the cost not so much of money as of thought, and one boulevard is all that is compassable, it is essential to keep the one boulevard between the sidewalk and the road. In the question of beauty, there is too much dull colour in one mass, if the roadway and sidewalks are together. Though they are of the same family, they do not necessarily harmonize and are best apart. In this position also the climb from the road level to the sidewalk, for carriages or automobile entrances, is accomplished in the width of the boulevard and the sidewalk can be crossed on the level. There is thus no need for those dangerous level cuts in the outer edge of the sidewalk, which are so frequent when the sidewalk is against the road, and, constitute, in the dark, or in winter when the snow disguises them, a succession of traps for the foot passengers. When a sidewalk in this position is narrow, the outer person, of two walking abreast, needs to exercise watchfulness at any time, and in winter is in positive danger.

It is worth nothing, before leaving the question of roads and sidewalks, that, though there was some conflict between the trustees of the Macpherson Estate and the city officials, about the high prices paid by the trustees for sidewalks, for which the City had agreed to be jointly responsible, yet the cost of local improve-

ments per running foot of frontage is not much more than half the ordinary cost for residence streets, and less than half the average of such streets. This is a conspicuous advantage of macadam construction and moderate width for the roadway.

For the front of the lots the trustees of the Macpherson Estate believe in fences, but substantial fences or else hedges. Wood is in fact an ephemeral material and nothing made of it can suggest that idea of durability which is an essential element in the effect of architecture upon the beholder. To have stood for generations past gives character to architecture, apart from the weathering of time. It is the mere fact of durability that impresses us. And this impressiveness can be shared by new work which, though it has not stood for a long time, yet suggests by its appearance that it will. Masonry of some kind is the only architectural material for a fence. Hedges also are satisfactory, as belonging to the ground. But wood is not satisfactory about a house, except as a support for plants. Under this head a rail or two, to support and guard a hedge on the outside, is not amiss. But, rather than wood, no fence is preferable. In the Macpherson Estate this has been practised where the lots rise above the sidewalk, and the effect is good. On the level (where they have fences) the practice would not be so satisfactory. But it is a middle term between durable fencing and wood; and it has this to recommend it, that, where there is not a double boulevard, the sidewalk gets the effect, which is so pleasing, of running along, a narrow band of stone or brick, flush with the grass on either side.

In the rear, where fences are necessary, it has been found also necessary to make them of wood, on account of the expense of masonry. But beauty on the inside of the lot is a leading principle in the development of the estate, and instead of the crude post and rail fences, that are so common in Toronto, the architect has made panelled fences, equally pleasant to the eye on both sides, and stained them with creosote stains. With a small portion of the rear fenced off, to make a kitchen yard, the rest is a garden; and, where all neighbours equally have had the interior of their land made into a garden, the views from rear windows are as pleasant as those from the front, or more so; so that a house that faces north can have its living rooms to the south, where they ought to be.

The beautification of the interior of the lots is perhaps the most important rule of all to establish in a neighbourhood; for it makes aspect planning possible for every house, and prepares the way for variety in placing the houses. Where there is no rule, there is no safety but in looking rigidly upon the respectable street and one's own controllable back yard; but an understood practice, to which public opinion guarantees conformity, as on the garden side of the London residence blocks, makes it possible to go a step farther than they have gone in London, (where the houses are jammed together in rows), and lay out an estate, as the Messrs. Boulton have done, with an eye to a varied presentation of the fronts to the lines of view.

This last development, which contains all the conditions arrived at before, is shown in what is called the Chestnut Park Estate, formerly the site of Chestnut Park, Sir David Macpherson's residence.

Chestnut Park Road* has, at the bottom, the prin-

ciple of a crescent; that is to say it serves only its own houses, and through traffic passes it by. People living in Chestnut Park Road, or the short roads that connect it with Roxborough street, will have only such disturbance from carts as is necessary for the supply of their own needs; and street car extension will not change the character of their property. There ought to be more of such self contained blocks in Toronto.

The other advantage of a crescent road—the continually changing presentation of the fronts to the eye—has been retained in the long line of the road from east to west, by making this part of the road a succession of curves. There is thus, continual variety. The rounded corners have much to do with this. A corner rounded off is of course land given away to the city; but liberality in this way is not deprivation if it can be made to improve the lot itself and the outlook from it.

A great part of the variety of the Chestnut Park Estate will lie in the consistently rounded corners. In the first place there is the agreeableness of the curve and the satisfaction of cutting corners; every road is given an easy line in every direction and the sidewalks serve the foot-passenger even elaborately, curving to make short cuts in every direction.* But it is in what is left that the beauty chiefly lies. Between the lines of traffic there are dead spaces, of areas proportioned to the extent to which the corners are rounded. At the top of the most easterly, north and south road, where it joins with Chestnut Park Road, the diagonal of the junction is about 125 ft., and the island formed between the road curves is over 60 ft. on a side. The other islands are of different sizes; but the least is 27 ft. on a side. So that there is room on every island for a large tree, or a plantation of shrubs. What the results of this will be, in the way of beauty, can be easily imagined—and it all proceeds from the rounded corners. The houses on these corners will naturally have their axis on a diagonal of the crossing and face the islands. The resulting arrangement of the houses in one of the blocks is shown in the plan. It is proposed to fence off a small kitchen yard for each house, and treat the remainder of the lots as gardens. At present this particular block is covered with apple trees, and it will probably remain so in great part.

It should be added that there will be no electric light poles, for the managers of the estate have decided that for a good residential district gas is preferable, and the telephone poles have been kept off the street, running at the back of the lots, (ultimately it is to be hoped, to go underground).

The place is fast building up and will not be long before its beauty should appear. It should not be long either before its example is followed elsewhere; for the effort to make the Macpherson Estate beautiful has made it a commercial success, and the owners of other estates cannot do better than aim also at a comprehensive scheme, which, by securing for a neighbourhood beauty and refinement, will enhance its value as property.

CANADIAN COMPANY TO MAKE FIRE APPLIANCES.

A company, with \$100,000 of capital, has been organized, to deal in fireproofing materials, fire preventive and extinguishing appliances, and devices for safety against fire, such as automatic alarms, automatic sprinklers, etc. Mr. J. A. C. McCuaig, late secretary of the Toronto Board of Fire Underwriters, has accepted the general management.

*The resulting circular form at the crossings was not part of the designers' intention, but resulted from the natural curves when they were all laid down.

* See Plan on Illustration Sheet.

OUR ILLUSTRATIONS.

HOUSE OF J. W. SIDDALL, ARCHITECT, TORONTO.

This house is of yellow pressed brick, white wood-work and black slate. The entrance is on the west. The window in the drawing room is placed to catch a view across one of the ravines. On the south the angular end of the dining room and a slated gable above, with the chimney on its face to one side, make, in combination with the front, a view rather more interesting than that here shown. The angle in the end is made in the brickwork without cutting; leaving as a projection the part of the brick which would be cut off if the bricks were shaped to the splay.

HOUSE IN VICTORIA, B. C.—S. MACLURE, ARCHITECT.

The inhabitants of Victoria are said to be chiefly English immigrants. This house is suggestive of England, in spite of its wooden construction, because it is evident that the living rooms turn inward to a garden. The American plan of making the living rooms "give" to the street tends too literally to unreserve to make the most of the house for what the American is so fond of calling it—a home. If this Victoria house is a type of all Victoria houses, the question is suggested how far the practice of looking towards the street is an effect of climate. A winter with snow does not suggest gardens; in particular, small, enclosed gardens; and that Victoria houses do not follow the custom of the rest of the country, but have taken naturally to the English "garden front," may be the consequence of gardens, in Victoria, being green all the year round. Yet a snowy garden is better than the street; and snow, after all, is not on the ground for long in the year. The American leaning to French design must surely in time produce a desire for the small interior garden which adds so much to the charm and dignity of houses in the towns of France.

COTTAGE AT VICTORIA—S. MACLURE, ARCHITECT.

A plan of this house is hardly necessary. The simplicity of the exterior is due to the disposition of the rooms round the entrance—parlour, north and west; dining room, south and east; kitchen, north and east. The small window in the middle of the south front probably lights the hall, and is opposite to a staircase on the other side leading to the bedrooms. This is a good contribution to the small house problem.

ST. MARY'S ANGLICAN CHURCH, PORTAGE-LA-PRAIRIE.

H. S. GRIFFITHS, ARCHITECT, WINNIPEG.

This church was built about four years ago. It has been the good fortune of the architect to build where there is stone, and also to understand that the proper treatment of the material is simplicity.

PLAN OF THE MACPHERSON ESTATE.

The plan of Chestnut Park Road, the second portion of the Macpherson Estate to be developed is the work of Messrs. H. C. and A. E. Boulton. The motives which dictated its plan are described in the article on page 51 dealing with the development of this estate.

VIEWS IN THE MACPHERSON ESTATE—S. H. TOWNSEND, ARCHITECT.

These houses are all of red brick, with roofs and projections shingled and stained in low tones. The view on Macpherson Avenue was taken with the purpose of showing rather the placing of the houses and the treatment of the ground than of exhibiting fully the houses themselves. The view was not re-

garded as a very promising one for residences until Mr. Townsend, seeing the advantage of the slight inequalities of the ground, evolved the idea of an alignment of judicious irregularity, founded upon any individuality observable in the lot. The houses were designed one at a time, but all by the same architect, who was therefore able to work out his idea completely.

Since the building scheme has increased and land, is sold instead of houses, the work of other architects has become included in the estate. In the view of Cluny Avenue, the house on the extreme right is by Mr. Eden Smith.

BOOKS.

PLANK FRAME BARN CONSTRUCTION; by John L. Shawver. Published by David Williams Co., 232-238 William Street, New York. Price 50 cents. This little book is intended for country readers. It gives directions for building barn frames of planks instead of timber. The system is said to be much in use in the Central West of the United States and has much to recommend it. There is a saving in both timber and labour, and the method of framing which dispenses with cross ties and constructs, with a system of triangles and long braces, a sort of angular catenary arch over the barn floor, allows the hay slings to run without hindrance from end to end. The writer claims greater durability also for this form of construction, because there are no mortises in which moisture may accumulate and cause the tenons to decay. He has been engaged in building barns in this manner and gives examples of the length of time taken. E. g. a basement barn 40x80 with 8 ft. basement, 16 ft. superstructure, and plain gable roof was begun by the writer on Wednesday morning, with three carpenters to assist him, and raised complete on Saturday of the same week. A dairy barn 100 x 36, with 8 ft. basement, and 16 ft. superstructure, framed by four house carpenters and two labourers, was begun on Monday towards noon and raised on Friday, in six hours, with the help of 30 men. And, more directly to compare plank framing with mortise framing, he states that he, with 3 helpers, framed a barn, 40 x 72, with 20 ft. posts, while two carpenters, framed the sills for a corn crib 5x40.

FERRIC AND HELIOGRAPHIC PROCESSES: A hand book for Photographers, Draughtsmen, and Sun Printers. By George E. Brown, F.L.C. Published by Tennant & Ward, 287 Fourth Avenue, New York. Price \$1.00. This is a manual for the use of persons who wish to prepare their own sensitive papers. For photographers who want to govern their results better, or to use paper of any surface they choose, and for architects, engineers and others who have reproduction to do on a large scale. Directions are given, (to speak particularly of paper for the use of architects,) for the preparation of paper for the Ferro-Prussiate or ordinary blue print, for the Pellet or blue line, the black line and Sepia prints. A chapter on "Prints on Fabrics," suggests the possibility, (with some pains, apparently,) of preparing silk, linen or cotton to receive printing. The chemical preparations may be applied with a sponge by gas-light, requiring nothing but a table; but drying must be speedy and in the dark (a closet with a coil at the bottom is suggested) and there is a good deal of preliminary chemical work of an exact nature.

CIVIC ART PAYS.

Some one may ask: But what difference does it make whether a city, town, or village is beautiful or not? Many answers might be given. One might point out the value of culture, the stimulating and ennobling influences of art, its importance as an educational medium, and its effect in increasing the economic productiveness of the laborer; but the person who would ask such a question in this day will appreciate but one answer: It pays. There is competition between cities and towns, just as surely as there is competition between business men. Every town strives to attract to itself the wealthiest, brainiest, and most progressive men of the country. Its future growth and influence depend upon its success in doing so. If it offers superior advantages and attractions, it succeeds. Now, one of the determining factors is the appearance of the town itself. If it is beautiful, men prefer it; if it is unsightly, they go elsewhere, and with them go their wealth, influence, business, and ability. This is true of all cities and towns, but it is particularly true of smaller centres. A metropolis has many other advantages to offer; the town or small city has few, and must therefore utilize every one to its full extent.

Civic art pays more directly. It is said that tourists annually leave Italy a sum of money equivalent to the interest upon the whole national debt. Many of the towns in Italy and Greece would be desolate and forgotten to-day were it not for the wonderful master-pieces of art handed down from ages long past. The thousands of Americans who visit Paris every year go there largely because Paris leads the world in civic art, and the sums spent there play no small part in the city's budget.—Milo Roy Maltbie, in the 'Chatauquan.

It is impossible not to recognize that beauty and cleanness in a town and ease of intercommunication between its parts will make a town attractive, and that the cost of giving it these qualities is likely to be repaid. This is an argument with which to make it politically possible to move in the direction of improvement; and, no doubt Mr. Maltbie is using it for this purpose. But let men who have no desire for beauty in their town, except as a means of attracting money, be kept out of the control of active operations to improve its beauty. They will only vulgarize it, and drive away those who are wealthy enough to have seen a little, and brainy enough to have learned the look of a good thing, and progressive enough to pass a bad thing by. It is only people who have a liking eye for their own town, and who want to make it beautiful for themselves, who can be trusted to preserve its attractive qualities while adding to their beauty. Emulation as a motive can only produce imitation; the introduction of fashion instead of taste. And, if there is competition between two towns over the same kind of claims to beauty, we may be sure that the necessary accentuation will not be one of refinement but of swagger. If we must appeal to vulgar motives in order to loosen purse strings it would be a good thing to let this kind of appeal end there; but this may be difficult and the difficulty raises the questions whether such an appeal is really necessary at all.

THE RULE WAS TOO SHORT.

Pat was busily engaged laying brick one day, when the foreman came to him and said:

"Pat, go back to the end of the building and measure the length of the foundation for me."

Pat vanished, and after a stay of some duration returned.

"Well, Pat," said the foreman, "did you measure it?"

"I did," answered Pat.

"How long was it?" was the question.

"Altogether," answered Pat, "'twas as long as me rule, me arm, an' two bricks."—Lippincott's Magazine.

MR. JOHN BELCHER ON THE STUDY OF OLD WORK.

Mr. Belcher in addressing, as President, students of the R.I.B.A., upon the subject of studying old work, said as follows:—

I want to take this opportunity to emphasise the importance of a more systematic study of those buildings which are universally recognised as good. "Quod semper, quod ubique, quod ab omnibus"* is a dictum which we may very well borrow from the theological schools and, having borrowed, stick to. Moreover, I should like to suggest certain methods to be adopted in the study of such examples. The student's first impulse, perhaps, is simply to annex the whole subject as "stock" or "copy." Now, certainly it is a very right and proper thing to sketch the building as a whole; but while doing so we must not let our thoughts lie idle; we should endeavour to discover why the subject is beautiful or admirable, what are the elements in it which have contributed to that result. At first, it may be, such an effort seems to go unrewarded; but if the habit be persisted in, intelligent perception will awaken, little by little the light will grow, and soon it will be quite easy to disentangle from the mass, as it were, those characteristics, those laws, those conditions, which have made the building what it is. While traversing some particular line, for instance, note its relative proportions to the other parts. Follow out, if you can, the methods of construction, and mark how the effects are produced. Examine the general masses from various points of view, and study the composition of your subject, not only in respect of its component parts, but also in relation to its environment. The latter is of great importance, for one of the chief elements of success in a building is its adaption to its surroundings. Here it is especially that "scale" comes in, for the scale of a building must be either in keeping with or in contrast to adjoining buildings or objects, just as colours must either match exactly or be complementary to one another. Scale is relative, and determines the proportion of one part to another and of the several parts to the whole. It is like the dominant note or key in a musical composition. You are probably all of you aware that sounds which harmonise and please the ear have fixed relations to one another. Colour also has its divisions and harmonies, and you will not get far in architecture without discovering that here also similar laws hold good, and that there is such a principle as a true proportion of parts in the scale of building. It is only by a diligent study of and a careful regard for these laws that we can effect a harmonious composition, which all the same can never be merely mechanical in architecture, any more than it can in music. There is as wide a range of possible combinations and developments in the one case as the other. The great architects of every age and every country have exhibited as wonderful a variety of progressions and characteristics as can be found in the works of Mozart, Beethoven, Mendelssohn, or Wagner. You shall also have regard to the aspect of the building you are studying—whether it is situated in the narrow street, the broad thoroughfare, or, or in open ground. Note how the projections and lights and shadows are determined on each frontage. Where the sun penetrates reflected light may be taken advantage of. Projections and shadows on a south front are by no means the same as they would be with a north aspect. How well Vanbrugh, amongst others, understood this! I mention Vanbrugh because his insistence on this point is so obvious. It is only thus by analysing and searching out the guiding principles which have actuated men in the past that we shall really profit by a study of their work. If we can discover the sequence of thought which has guided them in the achievement of fine results, we in our turn may, by taking thought, successfully work out the problems which come before us. Depend upon it, that which we admire in their work is not the result of

*What (has been accepted) always, everywhere, and by all.'

careless, accidental, or haphazard arrangement of materials. No, there is thought behind it all—sometimes naïf and immature, and sometimes even “smelling of the oil”; but there it is, and the best results are just those upon which the best thought has been expended. If genius is not, as it has been defined, “an infinite capacity for taking pains,” at any rate in architecture, it is very nearly akin to an infinite capacity for taking thought. The best thought, however, does not advertise itself, and the best work is not necessarily that which first arrests our attention. How often has it been our experience in the past, when going to a place a second or a third time, to come across some excellent building which altogether escaped our notice on a previous visit. Rely upon it, such a building will repay careful examination. Do not be misled by the apparent simplicity of much of the best work, for this very simplicity, if not the outcome of profound thought, is the triumph of a practised genius. Through the Complex to the simple is almost a law of mental evolution. Do not, therefore, fall into the error of a certain member of a building committee, who remarked to the assessor in a competition: “I cannot understand why you have put So-and-So’s design first. It is so simple—anybody could draw a plan like that.” When it was pointed out to him how difficult the other competitors had found their task, and how complex and incoherent some of their designs were, it began to dawn upon him that perhaps there was more in Mr. So-and-So’s design than met the eye of a casual member of a building committee. When you are making a study of a subject, it is upon the work as a whole that you should concentrate your critical acumen. Do not allow your attention to be diverted by attractive or suggestive bits, and do not wander off into the by-paths of archæology.

When you study mouldings, for instance, or similar features of a building, do not regard it as an opportunity for speculating what date, style, or period it belongs to; but regard it from the point of view of its true purpose and meaning. In the case of the mouldings, consider not merely their beauty of form, but their effectiveness in affording shadow and protection. Archæology has its place, but it should be kept there; it often usurps the interest and attention which ought to be given to the example as architecture. The glamour of historical romance has served to invest many a building with a purely factitious value. The accidental effects of age and decay appealing to the sentiment of the man pervert the judgment of the artist, to his own detriment and that of his art. This same sentimental halo, hanging around all that is ancient, is responsible for the many imitations, forgeries, and effectations which have so long dogged the footsteps and hindered the progress of genuine architecture, and which in some cases have proceeded to such an extreme of absurdity as to tempt men to forswear the past altogether, and to rely upon their own creative faculty to invent something altogether new. This is the other extreme of folly, for folly it is to think that our inherited traditions can be safely ignored, or that buildings which have stood the test of time and criticism have nothing to teach us. They are, on the contrary, as mines of wealth in which, digging deep, we shall unearth many a hidden treasure. They put before us problems—and their successful solution. They portray many various methods and effective combinations, suitable forms adapted to different materials, varied textures serving a definite purpose, and other elements of beauty and strength which, if not always entirely realised, are yet present as an ideal which we may all study with advantage and strive to express in our own work. So I say to you, my youthful fellow-students, steer an even keel, if you can, between the Scylla of a superstitious and sentimental regard for the past and the Charybdis of a contemptuous indifference to all its works. If an example is merely old, leave it alone; if it is artistically good, approach it with all reverence and, examining its structure within and without, endeavour to discover the secret of its charm.

Do not make the mistake of supposing that you will necessarily be able to define the exact nature of the secret. There are principles of architecture as absolutely reliable, and yet as vague and ill-defined, as much “in the air” as the laws which govern musical progressions or the methods which underlie true literary form. In no one of these cases can the subtle secrets of the art be distilled in the form of express and mechanical rules. If we desire that our own powers may be moulded and guided on true lines, we must, as it were, live in the storehouses, continually absorbing the spirit of the masters as embodied and expressed in their works. Centuries of experiment and criticism, generation after generation of trained perception and cultured intelligence, have gone to determine what is good, what is beautiful, what is true. Shall we throw away the result of all this? Rather let us recognise and admit that our knowledge should be based upon the experience of those who have gone before, and our taste trained and refined in the study of the cultured monuments of the past. As Professor Clausen has said in reference to paintings, “The work of our own times may lose its freshness and interest in a few years, while the older works still hold us with an increasing charm.” There are many ancient buildings in our own and every land which hold us with an ever-increasing charm—a charm attributable to their simplicity and self-restraint, their sincerity and directness of purpose, the straightforward and appropriate way in which they declare their object and intention. Every such building will be found to possess a vitality of its own, which so far from ignoring traditional methods, has taken them up and carried them on a stage further. So now the proportions and values which have determined good effects in the past must hold good to-day. The needs of the time, it is true, call for special and characteristic expression. We may have to readjust, to combine afresh; but every new departure, if it is to be true and lasting, must take the old as its starting point, the past as its basis, that which has been already accomplished as its foundation.

MR. CARNEGIE ENTERTAINED BY BUILDERS.

A noon reception was given at the Builders’ Exchange, Cleveland to Mr. Carnegie on March 9. It is said that the largest crowd ever in the Exchange was present. Mr. Carnegie having been presented to the members of the Exchange by the President, in a complimentary speech, replied. In the course of his speech, Mr. Carnegie said:—

“I am very glad to see you all together here competing for trade. It is the best of systems. Many people think that competitors are bitter enemies. But it is not so. I have some of the closest friends who were formerly my competitors.

“If a man be true to the judge within he has nothing to fear. That is a great principle in life, but there is one other as great, and that is, a man does not live unless he walks through life surrounded by a circle of friends.”

“A man hates only those he doesn’t know. I knew my competitors and among them were my best friends. Get together and learn those whom you would hate and the world will be a good place for you to live in. I am a great believer in a young fellow’s doing something for himself. That acquaintance with his neighbors, his consultation and exchange of ideas with them is the first thing I would have a young man do for himself. It is the best thing also, one of the foundations of life itself.

“At the close I want to thank you for the pleasure which you have given me this noon. As long as I live I think I shall remember this meeting.”

Following the speech-making there was a period of hand-shaking. All were given an opportunity of grasping him by the hand, and for many he had a pleasing word. After the reception he attended a luncheon given in his honor by the directors of the exchange, and entertained the latter most happily for upwards of an hour with anecdote and conversation.

MODERN METHODS OF FINANCING BUILDING OPERATIONS.*

By CHARLES W. RUSSELL, of Clinton & Russell, New York.

The methods of financing building operations vary in different places. In New York many schemes have been adopted for a while, to give place at length to other methods.

For example, when apartment houses were first introduced they became very popular. Then what was known as the co-operative apartment house scheme was invented. The promoters would get the refusal of a piece of land, have plans drawn and organize a company of people who wanted homes. The plan was to give the owner of a certain amount of stock a perpetual lease of an apartment (very similar to the custom an in Venice of different floors in a building belonging to different owners.) A great many large apartment houses were built on this scheme, but after one notable instance, in which the mortgage was foreclosed and the stockholders wiped out, this method was abandoned.

Formerly much of New York city was built on leasehold property, and many of the finest stores are on leased land, such as A. T. Stewart's (now John Wanamaker's), Tiffany & Co., Union Square; W. J. Sloane, and others. But at the present time very little is loaned on leasehold, and it is almost impossible to finance a large proposition in New York, if the fee of land is not included.

This is not the case in Chicago, where many very large and high buildings are on leased ground.

Most of the dwellings in the large cities of the world have been built by operators building rows of similar houses and selling them separately. This form of operation appeals to a large number. Men of small capital can start in a small way, and by investing their profits in more houses often build whole neighborhoods. They are usually successful during rising markets. Of course, houses reproduced a number of times can be built more cheaply than separate houses.

The plan of finance is often to employ an "architect" to make the plans of one house. A loan is then procured, and the different subcontractors are induced to wait for their final payments until some of the houses are sold.

But there are many builders who built very good houses to sell, in New York, and a large number of fire-proof residences have been built and sold, and not a few have brought between one hundred thousand and two hundred thousand dollars each in the last few years. There are very few private residences built at present on Manhattan Island, apartment houses being the vogue.

In the financing of a building operation, the promoter has usually to provide the difference between the amount of money that can be borrowed on the enterprise and the cost of it. The permanent loan is usually made by a financial institution on a conservative basis, loaning only 50 or 60 per cent. of the value of the enterprise at a low rate of interest. If the conservative institutions decide for certain reasons not to loan money, there is very little promoting done until they wish to again loan. Of course, there is a great deal of money loaned by private individuals, but their loans are generally of smaller amounts.

There are institutions which make a business of loaning and selling the mortgages to private individuals. Thus, the financial institutions have the first claim on most enterprises. They decide whether there will be an active business or not. If they are desirous of loaning, there are always operators who are anxious to promote enterprises.

As the size of operations in this country has increased to enormous proportions, so have construction companies, been formed with very large capital. Some of these have increased their scope until now they will underwrite the mortgage and assist in financing the whole operation and build the building. This class of operation is almost exclusively confined to central and staple property.

A popular mode of procedure for men who wish to operate in real estate, is to form a company, usually called a realty company, and for each particular building operation a subsidiary company is formed by the parent company, which method, under the laws of the State of New York, eliminates the element of personal liability of the stockholders.

There is a large field for these realty companies, managed on conservative lines, and they are of great advantage to people who are forced to improve their property. It may be that their buildings are too poor to compete with new neighbors, or too old, or that they have been destroyed by fire, etc., or for other reasons. For example, a man has a piece of property in a business centre which he is forced to sell or improve, and which is appraised at, say, \$1,000,000; it does not carry itself, and there is not a ready sale for it at that price. A realty company might make the following proposition, viz.: To erect on it a building costing, say, \$1,000,000; to pay him for his land \$600,000 in cash and \$400,000 in second mortgage bonds of the company. The realty company would borrow from a financial institution, say, \$600,000 on the land, and say \$500,000 on the building as it progresses. After paying the owner \$600,000, they would have \$500,000 in cash for the building, and the stockholders would have to put in the balance, \$500,000, and own the equity. In some instances the company issues no second mortgage bonds, but only stock.

There are many men who are forced to sell or improve their property, and while they have not the means to improve it themselves, they would prefer to keep an interest in it to selling it altogether, and they also feel that the experts in the realty company know better than they what the nature of the improvement should be. Perhaps the owners are not in this country, or perhaps they are not in a position to wish to take much trouble in posting themselves as to the requirements.

Some proposition like the above, in which they retain stock, naturally appeals to them. Of course, if the realty company puts in very little cash, it may prove a poor operation for the owner of the land, as he is taking most of the risk, and had better get most of the profits.

The financing of large building operations has been tried on very much the same lines as railroads are financed, that is, issuing bonds and stock in shares of, say, \$100 each. Also large operations have been put through in Boston, I am told, by selling only stock in small shares without the property being bonded, and again other large operations have successfully carried out by selling first mortgage bonds in small amounts. The stock in such an instance representing no payment in cash, but professing to represent the earning power over expenses.

These plans have not been popular in New York.

Real estate has increased so much in value in large cities that it would not be possible for most men to invest in it if it were not through these companies. While formerly only the rich were able to participate in large enterprises, now, through the large corporations, the people can be interested in all the great enterprises of the country.

Building loan operations in great numbers have been started for persons who wished to build homes. Under their plan the tenant gets the property upon the payment of a very small equity. He then, in lieu of rent, may pay off each month a small portion of the mortgage, in addition to the carrying charges.

The question How much will a building cost? and, When will it be finished? are of the greatest importance to the financier. These questions depend largely upon the labor conditions, on which subject the architect and his client, the owner, are not usually given a chance to be heard, although the owner is the greatest sufferer from strikes and lockouts. His interest account is going on all the while, and he has very much more at stake than the builder.

A company that could give a guarantee to finish a building at a certain time for a certain amount of

* Paper read at the 38th Annual Convention, A. I. A., Washington, D. C.

money would indeed facilitate any building operation. Let us hope that this may soon be the case.

It is not the province of the architect to formulate the financial scheme or to place the securities of the project. He may be called upon to design a new building, introducing features which will make it superior to its competitors. He is usually expected to prepare preliminary plans, specifications, and to give an estimate cost of building, carrying charges and operating expenses in the shortest possible time. He should theoretically not put in anything that is not of use. He should at the same time make his building pleasing to the public, without adding necessarily to the cost.

Assume, for instance, that it is proposed to finance the construction of a high office building in some great centre. To insure a good income, the requirements, above the first and second storey, would probably be to have as many windows as possible, not too large to be easily operated and yet as large as practicable.

Each window would be separated from each other window, preferably by masonry, as it is advisable to have as little steel as possible exposed to the elements, but steel thoroughly covered with cement masonry is supposed not to deteriorate.

Projections over adjoining property should be dispensed with to avoid legal complications. Many title guarantee companies discriminate against such encroachments. A large cornice is a disadvantage to windows under it.

Therefore, the requirements which confront the architect are a flat wall pierced with windows at equal intervals, like a waffle iron, and not even relieved by a large projection.

Although this is a very difficult proposition, it is certainly a very interesting one.

The high building is essentially American. It is a new proposition and requires more originality to solve than a problem where some historic example from the Old World may be taken as a prototype.

Would it not seem as if these requirements might best be met by the application of colors? If someone would use bright colored terra cotta, for example, omitting large projections, but with a handsome sky line, make a beautiful building, he would indeed deserve the thanks of the community. For the skyscraper has come to stay, and the business centres of our large cities will be rebuilt.

The Egyptian, Greek, Roman, Romanesque, and Gothic architects all felt the want of color and used it, and although color had perhaps better not be suggested by an architect until he is quite sure that he will be employed, it seems to be a subject for serious consideration.

It is of the greatest importance to have the description of a proposition as brief as possible, but covering all the points. A resumé of the specifications is of great benefit.

THE IDEAL HOUSE.

Lecturing in Philadelphia, Dr. Robert Ellis Thompson described the city house of the future. He said it would contain no stoves. Cooking will be done by power, the building will be heated from a central plant, elevators will run from cellar to garret, and breakfast, lunch, and dinner will be supplied from a co-operative centre. The era of scientific cooking on the co-operative plan has been inaugurated in Bergen, Norway, where for nearly a generation cooking has been banished from the home, and all receive their meals from co-operative centres.

Not only will the house of the future be cleaned by power, but the dust will be removed by a pneumatic exhaust system. Streets will be cleaned in like manner, and the dust and dirt will be carried away into the country, so that country people may yet visit the cities for a breath of fresh air.

Hospital Nurse: "These new patent fire escapes are great blessings." Hospital Doctor: "Indeed they are. It is much easier to cure fractures than burns."

OUR HOMES TO WARM.

The man who strives, at the expense of his coal pile and peace of mind to maintain a temperature of 68 or 70 degrees in his home incurs a needless waste and endangers his health is the conclusion of Dr. Henry Mitchell Smith, a Brooklyn physician. Dr. Smith has spent years in the study and observation of the effect of an over-heated and over-dry indoor atmosphere upon the health, and has come to the conclusion that what is needed when the thermometer registers say, 65 degrees, is not more heat, but more moisture in the air. When it is taken into account that 25 per cent. of the cost of heating is expended in raising a temperature from 60 to 70 degrees, it will be seen that Dr. Smith has solved a great economic problem, as well as pointing a way to the preservation of health. A moment's thought recalls the fact that we often sit out of doors in the spring and summer with perfect comfort at a temperature that would cause us to shiver in our rooms in winter. These widely different conditions Dr. Smith attributes to the presence of humidity in the one instance and its absence in the other.

Dr. Smith has so repeatedly demonstrated the fact that an indoor temperature of 65 degrees is more balmy and agreeable than a much higher temperature, provided there is sufficient humidity that, he declares, it should be a cardinal rule that if a room at 68 degrees is not warm enough for any healthy person it is because the relative humidity is too low, and in such a case the proper procedure is to raise the relative humidity not the temperature. He recommends that every household should have a hygrometer, or moisture indicator, and that water should be evaporated in rooms in sufficient amount to secure a relative humidity of about 60 per cent. In the absence of the hygrometer a simple test will be to evaporate a sufficient amount of moisture to make the room comfortable at 65 or 68 degrees.

One point emphasized by Dr. Smith is that every time we step out of our houses during the winter season we pass from an atmosphere with a relative humidity of about 30 per cent. into one with a relative humidity of, on an average, 70 per cent. "Such a sharp and violent contrast must be productive of harm, particularly to the delicate mucous membranes of the upper air passages."

The remedy is to maintain the indoor humidity at the proper point—between 60 and 70 per cent.

THE CAMPANILE, VENICE.

The committee entrusted with the superintendence of the work in connection with the re-erection of St. Mark's Campanile, says the correspondent of the *Glasgow Herald*, has published particulars of the progress made during the past year. The report states that, during 1904, 3076 trunks of larch trees, having an average diameter of eight inches and length of from 12 to 13 feet, have been driven into the ground around the old foundations, which have been thus strengthened sufficiently to bear a load of 16,000 tons and support a pressure of 4.82 tons to the square foot. Larch trees have been used in preference to oak, as their trunks are straighter. The spaces between these piles have been filled up with cement and stones, the whole forming a solid and reliable base on which to raise the superstructure. This foundation has been further strengthened by placing above it a further row of piles laid lengthwise and covered with cement. Up to the present the total expenses connected with the work amount to 115,588 lire (or about 4623*l.*), 79,914 lire having been spent during 1904 and 36,674 lire in the preceding year. Still greater precautions are to be taken to insure the stability of the new structure, and it is estimated that before the base is considered thoroughly reliable a sum approximating 8000*l.* will have been expended.

Messrs. Stewart & Langley, contractors, of Niagara Falls, Ont., recently constructed in twenty-eight days 471 cubic yards of 12 inch concrete walling for the new chemical works at Longford, Ont., of which Mr. E. D. Pitt, of Niagara Falls, is the architect. This may well be considered rapid work.

WHERE AND HOW THE BRITISH FIRE PREVENTION COMMITTEE CONDUCTS ITS TESTS.

The following description from the London Builders' Journal, (quoted in Fireproof), shows how English fire-proofing material gets its guarantee. The opportunity of exposing material to fire and water tests, equal to the conditions in a fire, is of great service to manufacturers who wish to produce something that is of real use. And, for architects, it is satisfactory to have new material brought to their notice by means of a test record rather than by mere assertion.

"It is not often the fortune of a non-member to be able to attend the testing operations of the British Fire Prevention Committee, unless he happens to be a government, municipal or insurance official. The attendance at such tests is very strictly limited, the members only attending by rotation, and strangers—if they are not official representatives—being only quite exceptionally seen within the testing station grounds. Though perhaps not quite realized, there is always a considerable risk of accident at tests. The volume of flame is considerable and extremely gaseous, and the hazard of a falling wall or a gas explosion is considerable. This is evidenced by the fact that when issuing invitations the committee does not hold itself responsible for injuries sustained by a visitor. No description, account or criticism of a test other than the duly authorized official report is allowed.

It was my privilege to attend the testing operations one afternoon this winter, with special permission to write about what I saw, provided that particular reference to the actual tests undertaken was avoided.

On arriving at the testing station, situated in Porchester Road, Bayswater, some little time before the appointed hour, everything was in readiness for the day's programme. The site is secluded, having quite a narrow frontage to Porchester Road, and one of its boundaries abuts the Great Western Railway. Where there is a possibility of overlooking the site, the portions are screened by the erection of a trellis-work about 30 feet high. The testing plant comprises three testing chambers, two back to back, measuring 10 feet by 10 feet in floor area, and one measuring 22 feet by 10 feet in floor area, the measurements being taken inside the walls. The necessary fire is produced by a large gas-producing plant (installed by Messrs. Mason of Manchester), from which an 18-inch pipe runs to the testing chambers and from which gas is taken into these chambers by the aid of subsidiary pipes controlled by valves. The flame from these gas fires is of great intensity, occasionally streaming like a gigantic burner, but it also spreads from time to time, consuming its own smoke and creating that volume of fire which is such a dangerous factor in actual conflagrations. The temperature of the fire is measured to a nicety with the aid of Robert-Austens pyrometers, pyrometer points being distributed in each testing chamber and the electric current carried by overhead wires to the instrument room.

No fire test would be complete without the very serious water test, for it is often the case that materials will stand quite a considerable amount of fire, but at the veriest touch of water will disintegrate or collapse. This water test is obtained with the aid of a very neat small steam fire-engine.

The actual work of taking a record of what has happened during a test is generally entrusted to a special testing sub-committee, which is formed from among members of the executive and members of the committee. As a rule, at least one district surveyor is on the sub-committee, and then, according to the subject, either an architect or an engineer, and perhaps a fire-brigade officer of an insurance surveyor.

The gentlemen acting on this testing committee have various duties allocated to them, and the tests are conducted with remarkable smoothness; and as the temperature can be made to rise and fall by due working of the valves, etc., practically all the tests may be said to be on uniform lines as far as conditions are

concerned. Say a testing operation is intended to involve a temperature of not less than 1,800 degrees at the finish, the temperature to rise gradually to that point, it will be seen time after time how, just at the close of the test, the temperature, which has been gradually rising is brought to 1,820 degrees, or say 1,850 degrees Fahr.

I noticed at the test a very important government official whose work brings him frequently in close touch with the question of fire and fire prevention, the chairman of the executive, a leading waterworks engineer, and about a dozen insurance surveyors and half a dozen district surveyors; also several architects well known as men of practical and constructive experience. Among the visitors were some of the leading members of the professional and volunteer fire service.

Obviously, occasional meetings on a common subject between men belonging to different though kindred professions must in itself mean a considerable interchange of knowledge and experience. In these instances the primary object is the unraveling of the truth relating to fire-resisting materials, and there is certainly no better subject for debate if one remembers the different aspects in which such materials have to be regarded.

The first test on the occasion here dealt with was a short one, the object being to attain classification as affording "temporary protection" only; the next test was a more ambitious one, when an attempt was being made by the owners to attain classification as affording "full protection"—a classification but very rarely obtained.

The firm whose goods were intended to afford temporary protection passed through their ordeal with flying colors. It was generally anticipated that they would withstand the ordeal of fire, for they had already been through several minor tests; but that they should have also brilliantly withstood a very severe ordeal of water—in this case applied directly at right angles and at about 45 pounds pressure from a steam fire engine came, I understand, as a surprise. This firm has submitted to no fewer than three tests on previous occasions, doing a little better each time.

It is to firms of this description that the tests must be of great importance. Although perhaps not quite successful at the outset, they learn what can be obtained by some small improvement, and gradually as the improvement is perfected the desired results are obtained.

The second test dealt with one for the "fully protective" class. It was a product presented by an old-established firm of high technical standing. The material beat all records, as far as fire alone was concerned, and passed the ordeal necessary to get into the committee's topmost classification, but during the second minute of the two minutes' water ordeal—through which the work has to pass—there was a collapse, and by about 45 seconds the makers missed their goal. Here again, however, the miss was entirely dependent upon the absence of some small improvements, with the aid of which the highest classification would have been obtained.

The third test was what are called the committee's private tests, i. e., they were a series of tests with sprinklers for the information of the members. Sprinklers of various types and kinds were being examined with a view to ascertaining what they would do in certain practical circumstances, and it was remarkable to see the variations and unexpected results.

The most striking lesson of the testing operations of the afternoon was the realization that a safeguard in matters of fire-resisting construction is only as strong as its weakest point, and that where there is a weak point it must be so strengthened as to meet actual requirements.

I have mentioned the danger attendant on these investigations, but as these tests are veritable clothes wreckers of the first order, many a boot, coat and hat being irredeemably spoilt on such occasions, it cannot be an inexpensive matter for the workers and the

members attending and helping in the test, none of whom receive any remuneration, but have to bear all their own out of pocket expenses as well.

London has been saved from the introduction of many a material and appliance, generally of foreign origin, which unscrupulous vendors have tried to foist upon a public without first ascertaining its merits through the work done at these testing stations.

A successful test should be the hall mark for a manufacturer. It can only be a matter of some few years before testing operations will be compulsory either by legal enactment or local by-laws, and the sooner this day comes the better. All praise, however, to the body of public-spirited men who at their own expense of both money and time are meanwhile guarding London against the dangers of fictitious so-called "fire-proof" commodities being used in building construction."

MONTREAL JUNIOR ARCHITECTURAL SOCIETY.

With a view to establishing a club which would bring the junior members of the profession who have not yet qualified to practise as architects into touch with the Province of Quebec Association of Architects, the Secretary issued notices to the draughtsmen in the offices throughout the city to attend a meeting in the rooms of the Association on the 21st of March last. Mr. J. S. Archibald presided and there was an attendance of about 30. The object of the meeting was explained by Prof. P. E. Nobbs, A.R.I.B.A., and Mr. E. Vanier, representing the Association. After discussion, it was agreed to form a provisional committee, with Prof. Nobbs as convener, to draw up a draft Constitution and to lay it before the first General Meeting to be called on the 3rd of April.

At the first General Meeting Prof. Nobbs presided, there were 28 present and much interest was shown in the proceedings. The draft of the Constitution was read and discussed in sections, several minor points being referred to the executive for consideration. The following office bearers were elected: President, Cecil S. Burgess, A.R.I.B.A.; Vice-President, J. Fortin; Treasurer, F. Peden, A.R.I.B.A.; Hon. Secretaries, A. Wright and F. Gaulin; Members of executive council, Messrs. D. Viau, R. Charbonneau, W. Haldane and Prof. P. E. Nobbs. The council includes also the office bearers.

A vote of thanks was accorded to the P. Q. A. A. for the start it had given to the club and for the use of its rooms. An invitation to the Society to visit the McGill College Architectural Collections on the 29th of April was intimated by Prof. Nobbs and promptly accepted.

THE OWNERSHIP OF ARCHITECTURAL DRAWINGS.

At attempt is being made by the London Society of Architects to settle once for all the old question of ownership of architectural drawings in England. A case has just been tried, the present result of which is that a client may claim from the architect all the latter's drawings, specifications, sketches and memoranda referring to the building. This decision was handed down, not after a full discussion of the merits of the case, but by reason of a precedent which the judge construed as covering the question. As a matter of fact, the case which influenced the decision had to do with the claim of a client for the possession of drawings of a building which was not erected, but since he had paid for the design he rightly claimed something to show for his money.

The contention of the architect in this question of ownership is that the drawings are but a means to an end, as are the instruments and drawing boards used in producing them. The client contracts for a building, not for the means of its erection.

The likening of the drawings to drafting instruments, however, is not particularly apt. A layman could build his house with the aid of the drawings, whereas

he would be quite helpless if supplied with a T-square and triangles. A better simile would compare the drawings with the original brief or draft of a lawyer for a legal document. He turns over to his client the typed form, but keeps for his own protection his first draft of its contents.

There is another side of this question which deserves consideration. In the case of an alteration to an old building it seems quite unfair that the owner should be obliged to pay for a survey of the work as it stands, in addition to the usual fee for the new design. If, when the building was completed, he had been supplied with a set of the plans and elevations to keep as a record, the new architect would have been saved much unnecessary work and the owner additional expense. Of course, there is the claim that such drawings could be secured from the original architect, but if the building is an old one, it is quite possible that the architect is dead, and the task of finding the drawings becomes decidedly arduous.

It would seem, therefore, that while it is entirely out of all reason to compel an architect to give up his specifications and large scale detail drawings, yet the client is really entitled to copies of such drawings as will give him a definite record of the sizes of the rooms, the locations of the drains and all the many details which he will some day want to know and for which, otherwise, he would be put to considerable expense to to get.

In the United States the courts have defined architects' drawings as "instruments of service" and, as such, properly belonging to the architect and not to the client. Nevertheless, in the interest of a broader economy, it would seem an excellent practice for the architect invariably to supply the owner of a building with a record of its dimensions.—Architectural Review.

Every considerate, or, what is the same thing, sensible, architect will give his client a set of prints of the plans and elevations of his house. But this is a very different thing from giving him the ownership of the drawings. It is not only that the client gets, if he becomes the owner, a right to a large number of drawings that he does not want and the architect does, but that they are his to do what he likes with; not only to possess but to use; and there is nothing to prevent him getting a bunch of houses out of his architect for the cost of one.—Ed.

DANGERS FROM GAS.

Frequent casualties, says the *New York Times*, emphasize the danger of turning down the gas and leaving it burning "low" all night. This danger exists at all times, but especially in winter, and is much greater in New York, where water gas is supplied, than it is in cities which still depend upon retort gas. The reason for this is that water gas carries on the average four or five times as much carbon monoxide per unit of bulk as retort gas. Carbon monoxide is a very energetic blood poison. It has for the hemoglobin of the blood about four hundred times the affinity of oxygen, and as little as two-tenths of 1 per cent. in air breathed is certain to produce very serious symptoms of heart derangement in persons exposed to it, while in the presence of four-tenths of 1 per cent. no form of animal life can long be sustained.

Gas does not freeze; neither do gas pipes. What may freeze is the vapor of water carried by all gas in larger or smaller percentages. This watery vapor is condensed as frost on the inside of a cold pipe and may build up enough to close it. A very few degrees of heat will reconvert it into water, and when such conversion takes place a pipe which may have been temporarily closed is open again and permits gas to pass through. This happens frequently in dwellings, and explains why a gaslight turned low will sometimes "go out" and gas is subsequently found flowing through the burner.

There are many safe lights for the bedroom, and gas is so unsafe that its use for this purpose can only be attributed to ignorance of the danger it involves at all seasons, but especially in winter.

THE NEW OTTAWA UNIVERSITY BUILDING.

After the disastrous conflagration had visited Ottawa University and wiped out thousands of dollars in property, papers and other valuables, it was decided by those who had in charge the matter of building the new university, that the structure to replace the old would be of such construction that the fire demon would have no opportunity to repeat his devastating visit. After giving the matter of building materials serious consideration, it was decided to use Portland cement concrete.

The main building of the university has reached a state of completion where an opportunity for judging the utility of Portland cement concrete is offered. Visitors who have made the most critical observations evidently seem satisfied that the university authorities have made a wise selection.

The appearance of the structure is such that even upon the closest examination it almost seems that it is hewn from a mountain of solid rock. The building is one of the wonders of the capital, and Canadians feel that it rivals any college building on the continent. The building was not erected to serve for a day, but is expected to be a monument to modern architecture in centuries to come. Just as the Pantheon of Rome is a monument to the beginning of the centuries, the Ottawa University building is to stand as the first milestone along the path of progress of the builder of the present century.

For years, the world has been looking towards the time when buildings could be erected that would successfully stay the progress of the fire fiend and not crumble like a decaying log before the unceasing assaults of the elements. A simple yet indisputable argument which shows that the building is absolutely fireproof is the fact that during cold days, the workmen start fire on the floors to warm themselves and the rooms. Imagine for a moment such an occurrence in one of our modern college or high school buildings with a wooden floor. It has been demonstrated that concrete and steel rods expand and contract, under heat and cold in an equal ratio. When they are welded and knit together a building has been erected which will stand for ages as solid and as safe as Gibraltar.

In this remarkable structure beams, girders, pillars, stairways and floors are constructed of Portland cement concrete, and one can search from top to bottom and not find a single crevice or space to mark where the work began or ended. It is one solid structure of cement, with no other material apparent in the inner structural composition.

A trip through the structures under the supervision of Mr. Norman, the chief observer of the work, brought to light many interesting facts. Pointing to one of the beams above the gymnasium in the basement Mr. Norman said, "We tested that beam just 60 days after it was completed—you might say, while the cement was still green. The beam is 20 feet long from the wall resting on the middle of another beam, with a 30-foot span from pillar to pillar. On the center of this 20-foot beam was placed a weight of 44,600 pounds, or over 22 tons. This is no light load, but we had such confidence in the strength of the beam that we would have placed several additional tons on it, if such a course would have convinced us more thoroughly of its utility. The immense load was left on the beam for 24 hours, so that the test would be a thorough one. Upon examination, the beam showed a deflection of three thirty-seconds of an inch, which is less than one-tenth of an inch. This test was most satisfactory, especially when upon removing the weight the beam assumed an absolute level, demonstrating the rigidity and strength of the concrete.

"The cost of such a building formed quite a lively subject for debate when it was first broached, but a little investigation showed that the structure of concrete would be cheaper than any other that would be nearly as serviceable.

"Large wings will be erected to the north and south

of the main building," continued Mr. Norman, after he had conducted his party to the cement roof of the structure, "also a Convocation Hall, in one corner of the grounds, the Library in the centre, and the Medical Hall in the northeast corner. All of the buildings will be built of the same style of cement, as we are well satisfied with the results obtained in the present structure. It is also our purpose to erect at some future time, not very far off, two large seminaries for the juniors and Diocesan Seminarians. These will be built of cement concrete entirely, no stone or brick facings whatsoever, just solid Portland cement construction."

The party which was inspecting the building under Mr. Norman's direction had by this time become intensely interested in the results obtained by the use of this new and practicable building material, and was anxious to make some tests to satisfy the personal curiosity of the members. The solid concrete roof offered a good opportunity for a test, and accordingly the five men in the party stood close together on the side facing the west. The heaviest man in the party, weighing 225 pounds, leaped high into the air and alighted on the roof. There was no perceptible vibration, and only the sound caused by his shoes coming in contact with the concrete. The roof is in itself a marvel. Both it and the beautiful circular dome are cast in solid Portland cement concrete. To the examining eye, the whole of this immense structure, from the curved dome to the basement, appears to have been molded together without any frame work.

The main building of the Ottawa University will be one of the most magnificent and beautiful college buildings in America. The main entrance is through a hallway, broad and high. Standing in the centre of the octagon-shaped rotunda one will look up to the skylight, where there will be a beautiful representation of Carl Muller's great picture, "The Immaculate Conception." This was selected just recently by the head of the university. The mural decorations will be in keeping with chaste and scriptural design. Paintings of the four great evangelists will be on the panels on the ground floor. From the centre of this beautiful rotunda one can look above to the windows and decorations in the circular dome. The outside of the building is faced with beautiful grey Indiana limestone, but the real structure is one connected link of Portland cement concrete.

In the erection of the dormitories the greatest care will be exercised to secure absolutely fireproof construction. Between the rooms and wings of the buildings the partitions will be of asbestos and every other human precaution will be taken to prevent the recurrence of a conflagration similar to the one that wiped out the greater part of the university buildings and resulted in two fatalities.—Ohio Architect and Builder.

A USE FOR BROKEN BRICKS.

The grey—or white in various stages towards the ultimate black—which is the predominant architectural hue of Park Lane, has been recently relieved at the lower end of that aristocratic thoroughfare by an expanse of red. True, this only appears in the humble form of broken bricks covering a drive, and not on the body of a building; but the effect is very pleasing all the same. Moreover, the mansion which has adopted this for its approach is quite of the finest in Park Lane and it is to be hoped that the plan may commend itself to others. The broken bricks have now been laid some months, and after a heavy fall of rain last week presented a perfectly dry surface. Surely if Park Lane can adopt a paving of this sort, houses everywhere may well follow suit.

Toronto Junction Council proposes to enlarge fire limit B, in which houses must have a brick or stone veneer. A number of local builders, present at the special meeting at which this proposal was made, were strongly opposed to this change in the by-law, saying that it would prevent the erection of houses suitable for working men. They even urged that the present extent of limit B should be reduced.

MONTREAL NOTES.

With a very considerable amount of building in progress and in view, and with nothing serious threatening in the nature of strikes amongst the workmen, the prospects for the building season continue to be of the best. One of the largest schemes on foot promises to be that in connection with the Windsor hotel, the directors of which announced their intention last March of spending about one and a half million dollars in the erection of an Annex to their hotel on the site of the Windsor Hall.

The Windsor Hall in spite of certain accoustical deficiencies, is so essential to the well being of the community that its loss would be a severe one. We understand however that there is good prospect of another hall being presently erected in the same neighborhood to supply its place.

A good augury in the architectural field in Montreal appears in the establishment of a junior architectural club, and the P.Q.A.A. is to be congratulated on having set it on foot. The juniors start off with praiseworthy enthusiasm and an excellent constitution. The somewhat formal existence of the older society leaves plenty of field for activity on the part of the younger.

At the annual exhibition of pictures in the Art Gallery, open from March 12th to April 8th this year, the number of architectural drawings exhibited was very meagre, representing only eight exhibitors; and on the whole the representations did scant justice to the works they portray. Thus the view of the Branch of the Royal Bank at Westmount is far from giving a pleasing suggestion of this really fine building, and the same might be said of the drawing of the branch office of the Bank of Montreal by the same architects, Messrs. Edward & W. S. Maxwell, at Westmount. Their drawings of the exterior and interior of the C.P.R. station building at Winnipeg similarly fail to inspire one with admiration for the design, though leaving room to hope that the actual building will not be similarly wanting.

As is frequently the case in exhibitions of this kind, a number of drawings are spoiled as representations of architecture by the introduction of spottings of unnecessarily juicy color. This applies to a very nice little brick house by J. Rawson Gardiner, as well as to two houses shown by McVicar & Heriot. In the same way the key-note of the "New Sherbrooke," by the same authors, seems to be given by the red-hot motor car at the door; the architecture trying to look similarly up-to-date. Another of Messrs. McVicar & Heriot buildings, the Mussen Building, of a simple and rational design, looks vastly more pleasing in black and white. A preliminary study for the McGill Students Union stands distinguished as a piece of conscientious draughtmanship. The design is dignified and refined—perhaps a trifle too frigidly confined to a simple outline. One would like to see it swerve a little more to suit the presumably not too severe necessities of its human occupants.

George A. Ross, A.R.I.B.A., sends a measured drawing of the little Trianon at Versailles, which shows that he can take architecture seriously and treat it with respect. A number of designs by Clarence Luce exhibit a large ambition in compositions of an academic character.

If one considers how projects of public importance in Montreal have been managed in cases that have lately been much in prominence, one can hardly feel surprised if in architectural matters one finds few indications of large minded civic enterprise.

Some time ago one read day after day in the newspapers about the new Harbour Sheds till one became giddy with trying to make out whether they were actually to be of one storey or of two. Another question, of somewhat minor importance commercially no doubt, but more within the domain of pure architecture, was that of the Mountain Outlook. There was a scheme, announced more than a year ago, for a new wooden outlook, to replace the existing primitive and inoffensive shelter on a more spacious and ambitious scale. About one-third of it was actually carried out when some wisecracks, on a tour of self exhibition, affected to see in the rather artless creation something quite too atrocious for their sensitive artistic feelings. As there was no hit back coming from the little innocent, its ruin was forthwith decreed and forthwith it disappeared—the only purpose it had served in the meantime being to absorb a considerable sum of money. After these exhilarating proceedings the Parks and Ferries Committee tried to become quite serious, they obtained designs for a more substantial and permanent arrangement. When these designs were matured and estimates called, the soaring ambition of the promoters found itself unable to face the

expense, and went back to the City Council to ask advice on the matter. Now in proceedings of this kind, and more important instances must be of continual occurrence, it would seem not too impracticable to have a definite and useful if unofficial relationship between the city's representatives and the Association of Architects. For instance if the individuals among the aldermen who take a real pride and interest in the improvement of the city's appearance—there are some such—could be brought to discuss questions of civic amenity before the Association they ought to be well received. In case they had good projects which they would fain see carried out, they should find themselves in a congenial atmosphere in which their ideas could take root and develop. Their hands could be strengthened by the opinions of a variety of men whose business it is to judge of the benefit of schemes of the kind. They would be placing these matters in a field where a wider range of discussion would fill and round out their initial ideas; and it is to be hoped that, in some cases, they would find these ideas improved upon or even superseded by others which, under the present circumstances, are unlikely to occur to individuals working in comparative isolation.

CONCORDIA SALUS.

REAL ESTATE IN MONTREAL.

From the large amount of sales of real estate recorded during the month of March and the enquiries for residential and business properties it is safe to say that the market continues to be active, and the business for the first four months of this year is likely to show up better than it has done during the same period for many years.

Medium-priced dwelling houses in good localities for occupation this spring or in the early fall are readily sold and more readily rented. Even the high priced houses are finding purchasers, and the demand for all kinds of residential properties is pretty sure to lead to active building operations during the ensuing season.

The suburban sections can hardly fail to benefit from the insufficient supply of house accommodation in the city. Westmount particularly has attracted the attention this spring of a good many enquirers, and is likely to continue to do so.

Business properties have also been purchased freely in certain established sections, not so much for investment or speculation as with the object of meeting actual business requirements. The recent sales on St. Catherine street have rather stiffened the prices of properties on some of the side streets.

The demand for rentable space in buildings and factories still keeps up, but hardly to the extent that it does for dwelling house accommodation, but neither is the prospective supply of business space as large as the condition of the demand calls for excepting as regards offices, the supply of which appear to be sufficient for present needs.

On the whole the real estate situation in Montreal is a healthy one, but it is more satisfactory to the property owner than to the tenant, and building operations will have to be much more active than they are now to cause a surplus of house and business premises. Generally speaking, new houses are built more to sell than to rent and the prospects for selling are good. When a man has had his rent increased two or three times he is usually in a proper frame of mind to buy a home of his own.

One hundred and forty-four building permits were issued in March, and the stated aggregate cost of the work is \$489,680. This includes 81 permits for new buildings, consisting of 66 houses, 135 tenements, 2 stores, 1 warehouse, 3 factories, 1 educational building and 14 sheds, to cost in all \$370,450. There were 63 permits for alterations or repairs to 56 houses, 50 tenements, 31 stores, 2 factories, 1 hospital 1 hotel, 1 stable and 6 sheds, amounting to \$119,230.

The sales recorded during the month of March in the under-mentioned suburban municipalities amount to \$705,554, and are as follows:—Maisonneuve, \$12,725; Delorimier, \$9,280; Town of St. Louis, \$73,174; Petite Cote, \$2,709; Outremont, \$4,482; Cote des Neiges, \$5,526; Notre Dame de Grace, \$800; Montreal West, \$432; Verdun, \$1,542; Cote St. Paul, \$5,748; St. Henry, \$580,034; and Ste. Cunegonde, \$6,100. The exceptionally large amount in St. Henry includes a transfer from the Colonial Bleaching & Printing Co., Ltd., to the Dominion Textile Co., Ltd., the consideration being \$507,000.

There were 288 real estate transfers in the city wards and Town of Westmount recorded at the registry offices during the month of March, amounting to \$1,118,358.

During the corresponding month of last year 223 transfers were recorded, amounting to \$1,069,348.

The Cradock Simpson Real Estate Record.

Amid all the shouting we hear of the gospel of success, much of which will not bear examination, here are a couple of wholesome maxims from our exchanges:—

The talent of success is nothing more than doing what you can do well; and doing whatever you do without a thought of fame.

To do great things, a man must live as if he had never to die.

MASTER PLUMBERS ASSOCIATION OF ONTARIO.

The annual convention of the Association held at Guelph on Good Friday is considered to have been the most successful from the standpoint of a large attendance and sustained interest of any within the history of the organization. The fact of the meeting having been called on a public holiday when cheap railway fares were available, doubtless contributed to this result.

Among those present were: Chas. C. Cote, Niagara Falls; A. Stoner, Strathroy; F. Smith, Stratford; S. P. Gourlay, St. Catharines; W. H. Johns, Southampton; J. W. P. Huffman, Port Hope; Daniel Kerr, Sarnia; Geo. A. Caldwell, Buffalo, N.Y.; Lew J. Avery, Seneca Falls, N.Y.; Peter Shields, Kincardine; Oscar Zyrd, Hespeler; Charles Taylor, Brantford; L. H. Wilson, Frank P. Turner, Pittsburgh, Pa.; Thos. Phillips, Norman Phillips, Orillia; Geo. H. Lang; J. H. Neelands, Barrie; Jas. E. Scott, Foster Cook, Wm. Cadman, St. Thomas; John McKinley, H. A. Knox, Wilfred Knox, Ottawa; Peter Hipmen, P. Isies, H. Wolfhard, H. L. Hymmen, Berlin; Thos. A. No. ris, F. Lockhart, Hy. Dakin, James Scott, Benj. F. Bennett, A. J. Howes, Galt; John A. McLean, G. L. Needham, James R. Haslett, E. H. Russell, T. L. Partridge, Benj. Noble, O. F. Robb, W. J. Green, Wm. Young, London; W. D. Smith, H. W. Morley, G. C. Elliott, W. B. Malcolm, J. H. Wilson, R. W. Hamilton, A. M. Bond, Arthur Sommerville, W. G. Harris, R. Rodgers, W. J. Walsh, S. Melton, W. J. Clark, T. H. Davies, J. F. Bartlett, Hamilton; E. M. Passmore, W. A. Mahoney, W. J. Stevenson, Adam Taylor, John Yule, John Strachan, Morris Wills, Jas. J. Taylor, J. M. Struthers, E. B. Welsby, R. Mahoney, Fred Smith, A. Malcolm, Chas. Kelly, C. E. Richer, J. P. Hockin, Guelph; J. R. Foster, E. J. Brewer, W. J. Sheppard, E. Larter, J. I. Hanlan, D. J. Morgan, C. H. Beavis, E. B. Fewing, P. McMichael, Robt. Ross, W. H. Meredith, Wm. Mansell, A. McMichael, H. W. Anthes, Fred Armstrong, G. A. McDonald, W. E. Pickard, J. G. Fullerton, W. B. Inwood, K. J. Allison, Geo. H. Cooper, Lewis Le Grow, E. A. James, Harry Hogarth, Toronto.

The delegates from all parts of the Province were extended a civic welcome by Ald. J. M. Struthers, while the Taylor Forbes Co., Guelph Foundry Co., the Page Mersey Co., and the local manufacturing concerns co-operated with the local plumbers in making the visit enjoyable.

A conference was held between the members of the Association and representatives of the supply houses touching matters affecting the trade. The opinion has been expressed by some members of the Executive that in the future the conferences should be public, as are the meetings of the Association proper, thereby leaving no room for the suspicion that there is anything unfair in the methods of the organization, which are stated to be such as will bear the fullest investigation.

One of the most important results of the convention was the appointment of a Committee to draft a uniform Sanitary By-law to be submitted for adoption to all cities and towns in the province operating sewerage systems. The Toronto Plumbing Ordinance as amended March, 1896, will probably form the basis for the

new measure, but an effort will be made to improve upon this ordinance, which in some important particulars is felt to be defective, and unfair to plumbers. It is contended that all plumbers should not only be licensed but placed under bonds to make good any defects in their work. If this were done, it is urged that the plumbers should be given entire charge of the construction of the plumbing and drainage system both inside and outside the building as far as the street connections. In Toronto the plumber is held responsible for any leak which may develop in the drains notwithstanding that these are often put in by unskilled labor and are outside the plumbers' contract.

The Committee charged with the preparation of this proposed uniform Sanitary By-law is composed as follows:—Messrs. F. Armstrong, L. LeGrow, G. H. Cooper and J. H. Wilson, Toronto; B. Noble, London; H. A. Knox, Ottawa; W. Stephenson, Guelph.

Delegates were appointed to the convention of the National Association, which will be held in Atlanta, Ga., in June, as follows: F. Armstrong, Toronto; W. J. Walsh, Hamilton.

Messrs. John McKinley, Ottawa, and B. Noble, London, were appointed delegates to attend the meeting of the National Association of Steam Fitters, at Atlantic City, N.J., in June.

The following officers were elected for the ensuing year:

Past President—W. Mansell, Toronto.
President—W. J. Walsh, Hamilton.
Vice-President—H. Mahoney, Guelph.
Financial Secretary—T. H. Davies, Hamilton.
Secretary—W. H. Meredith, Toronto.
Treasurer—J. H. Wilson, Toronto.

Executive Committee—Messrs. E. H. Russell, London; H. A. Knox, Ottawa; A. Riddel, St. Catharines.

A very enjoyable dinner at the Wellington Hotel brought the convention to a close. Mr. Mahoney ably fulfilled the duties of Chairman and toastmaster.

In addition to the usual patriotic toasts, the following were honored:—"The Architects," proposed by R. Harriston, responded to by Mr. W. A. Mahoney. "Manufacturers and Supplymen," by F. Armstrong; responded to by Messrs. J. M. Taylor, C. L. Dunar and C. Near. "Sister Associations," proposed by Mr. W. Stevenson; responded to by Messrs. W. Walsh, E. Russell and E. E. P. Brain. "The Press" and "The Ladies."

A FEW HIGH STRUCTURES.

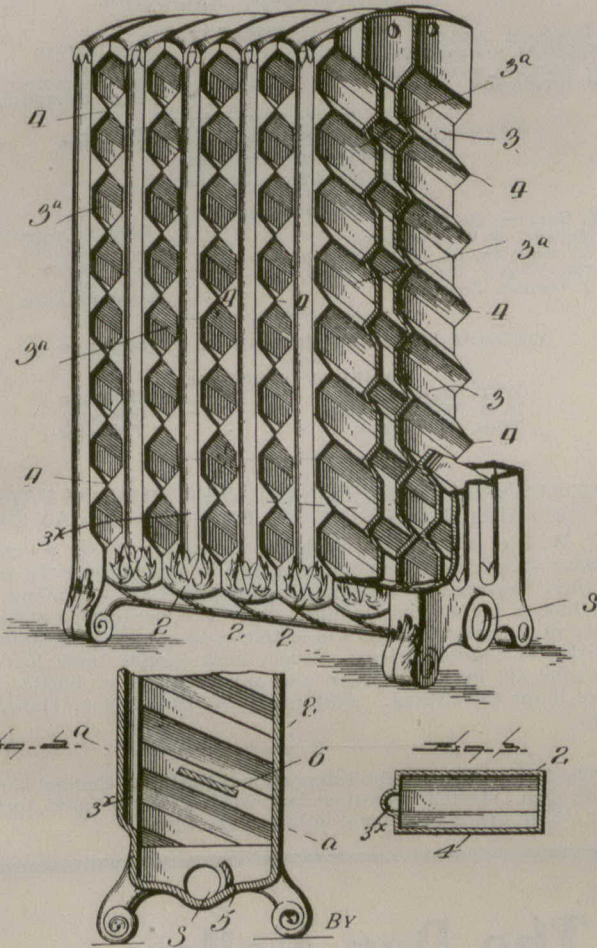
The tallest structure in the world to-day is the Eiffel tower, built for exhibition purposes at the Paris Exposition, with a height of 984 feet. Of enduring structures, the Washington monument stands at the head with its 555 feet of solid masonry.

The famous Cologne Cathedral comes next. It is 512 feet high, and built of stone to last centuries. Next in rank, Egypt's great pyramid at Ghizah, the wonder of all ages, stands a monument to the art of ancient builders. Though the beautiful slabs of white marble, which in the time of the Pharaohs lined its sides, have been stolen, and its tombs have been discovered and stripped, the great monument stands as solid and high as ever. It is claimed that evidence has been discovered that this pyramid was constructed by Noah, builder of the Ark. The pyramid is 485 feet high.

THE LEEK RADIATOR.

Walter Leek, heating engineer, of Vancouver, has patented a steam radiator designed to increase the amount of radiation per square foot of surface by decreasing the length of the air travel. Radiation of heat from steam being due to its condensation and the liberation of latent heat, the value of radiating surface depends upon its condensing power; in other words, upon the difference between the temperature of the steam and the air in contact with the radiator. And, to get the maximum of radiation,

wards the back which is therefore the coolest part. The air, in consequence of the inclination upwards and outwards of the spaces (3a) between the corrugations, will travel from back to front, meeting increasing heat as it grows increasingly warm. It is claimed therefore by the inventor that there is an active circulation of air through this radiator, and, if the warmed air, as he says, is cast towards the centre of the room the supply should be the cold air passing down the walls and there should be a maximum of radiation.



the coolest air in the room should keep coming to the radiator, and should pass away from it as soon as it is warmed. The usual vertical-loop radiator keeps warmed air in contact with most of its surface, because of the length of the air-travel. The Leek radiator gets over this by making the travel horizontal. The steam enters at S, and, under the combined influence of the canted corrugations of the loops (3x) and a baffle (5) at the bottom, moves upwards by way of the furrows (3x) on the outside which is therefore the hottest part of the radiator; and the water of condensation returns down the incline of the corrugations to-

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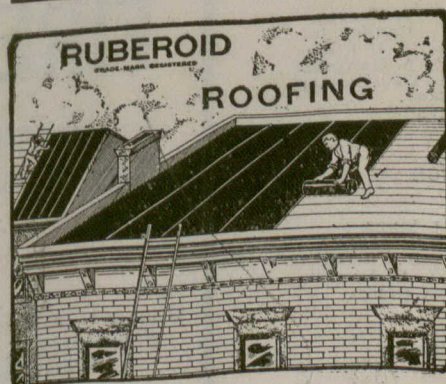
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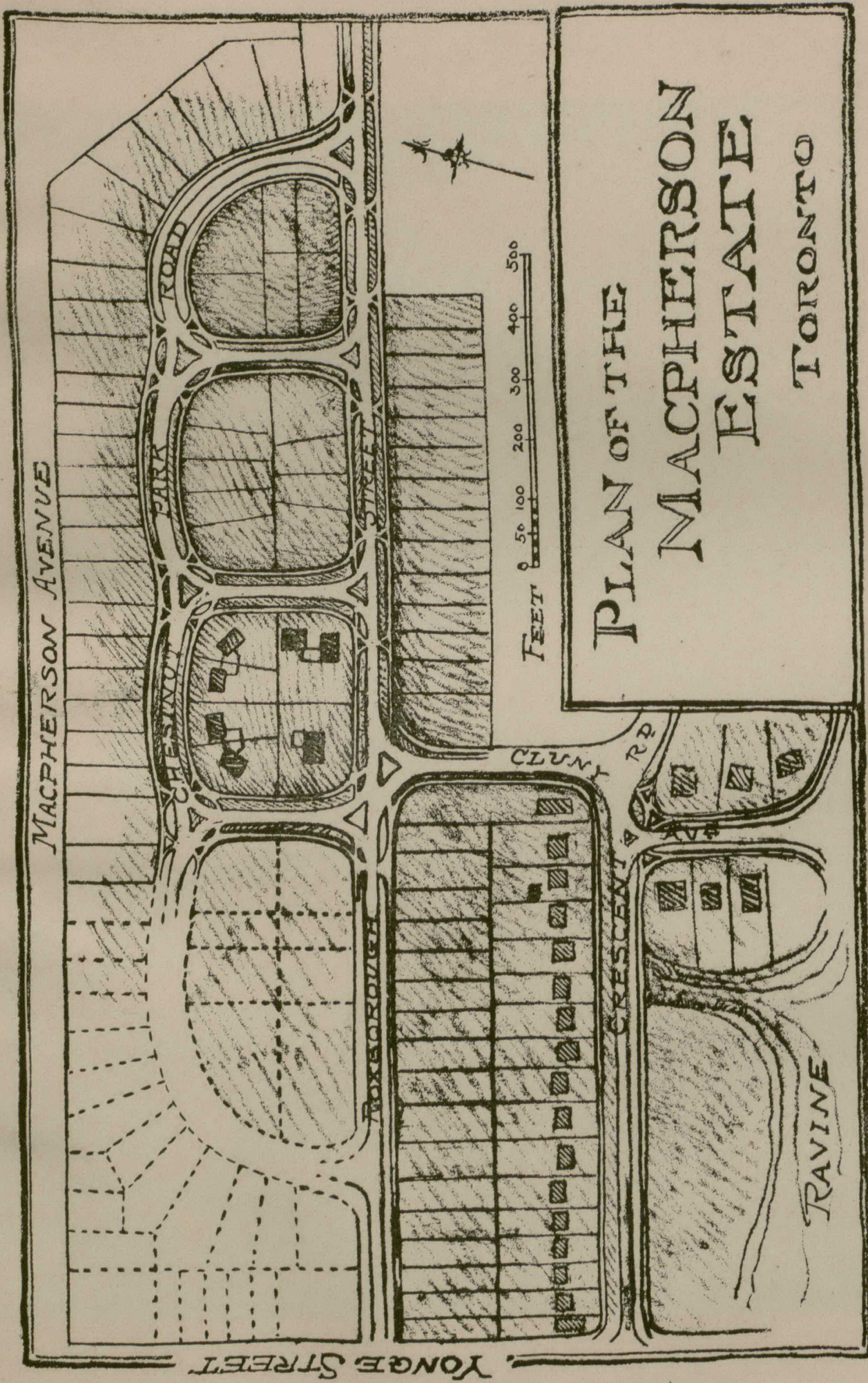
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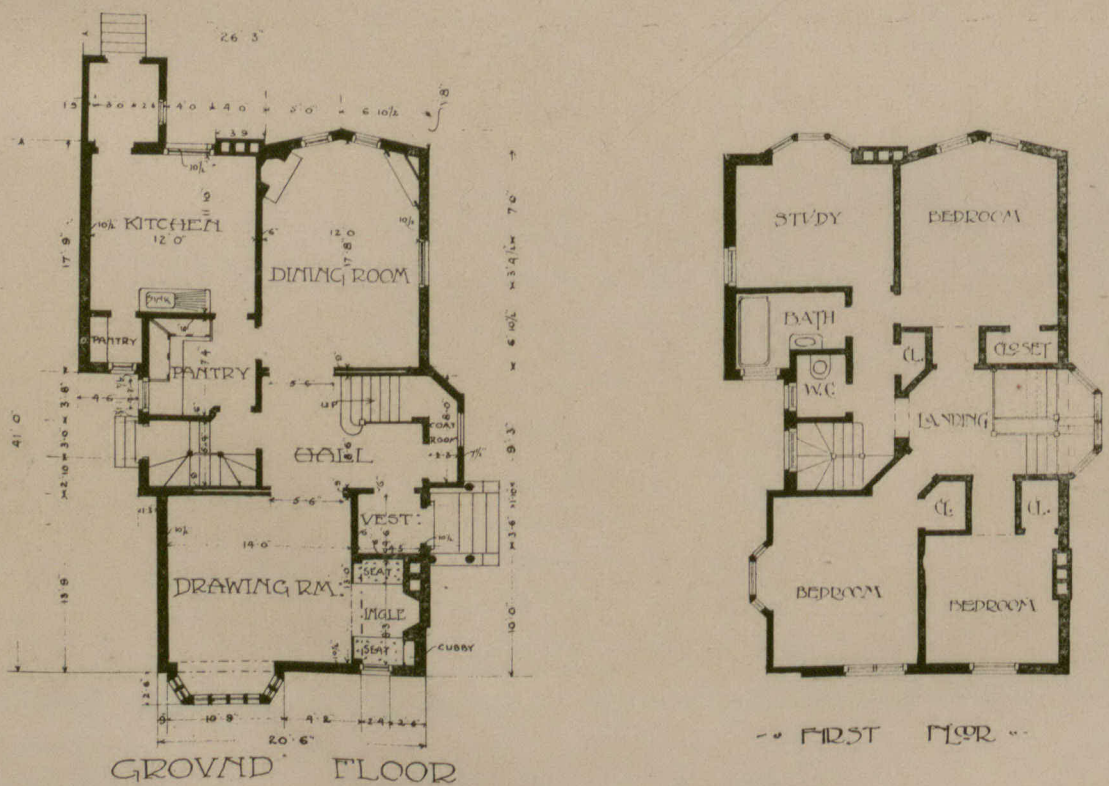
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