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MISSING

The Canadian Architect and Builder

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ILLUSTRATIONS ON SHEETS.

Club House for the Royal Canadian Yacht Club on Toronto Island; plans and a View.—Messrs. Sproatt & Rolph, Architects.
Cheap Cottages from English Sources.

ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

View of the Royal Canadian Yacht Club House, Toronto.
Interior Views of the Royal Canadian Yacht Club House, Toronto.

CONTENTS

The Sanitation of Muskoka.

The Ontario Board of Health held its quarterly meeting at Port Carling in Muskoka, and made a tour of inspection in the lakes to consider the question of their preservation from unsanitary influences. There is but one danger to general sanitariness, not only in these lakes but in others of our numberless lakes which are surrounded by camps and cottages with a summer population. The danger lies in the defilement of the water, and safety is in the general understanding that nothing should be thrown into it. The land is the proper place for the disposal of wastes. What cannot be burned must be distributed on or under the surface of the land. There may be agencies in the water as well as on land to eat up impurities, but man, who is not one of them, cannot avoid taking part in the work, where the water is concerned, whereas he can avoid it on the land. There should be a public opinion created as soon as possible against throwing things into the water. Not only drainage, slops and laundry water, but other refuse of all kinds should be kept out. The Muskoka Lakes' Association and other clubs of the kind should supply information to their members as to the best methods of sanitation about the house, in simple and in elaborate camps. The Board of Health is always ready to give information on the subject. And there are books (such as that reviewed in this number) which treat of the matter. There is no reason for ignorance. As summer camping is a national fashion with us it ought to be national forte.

Taking Pains to Come Under a Boycott.

There is an advertising sign set up on a little island in the Lachine Rapids, which attracted the attention of a Press party from the United States, who did not rest until they had gone to the manufacturers of the article advertised to find out how the advertising board was set up there. Having heard an account of the act of heroism by which the sign was conveyed to the island, the members of the Press party soon made copy of the story, with the comment that "this spirit of initiative does credit to the advertising department of the ———— Company." On the principle that every man must do his best according to his light we cannot refuse to commend the advertising department, the Press party, and all concerned; but we wish them more light. How, for instance, would a Lachine Rapids full of signs of the unnecessaries of life appeal to the Press party as the particular plum of an excursion? The pluck of the men who put up the sign was admirable, but was the thing aimed at worth the risk of their lives? Fortunately they came back safely, but it is fortunate also that an upset that washed them up on the island—boat, sign and men in separate parcels—so nearly brought "the fever called living" to an end with them that the initiative of that advertising department may perhaps be no further followed.

Municipal Testing Plants.

In another column will be seen a set of rules adopted by the Bureau of Buildings for the Borough of Manhattan for testing the acceptability of new building materials. It is not stated how far the proposed test will be applied to materials other than those used in buildings erected for the municipality. But it seems a reasonable thing that, since the field of invention has extended to building materials, a municipality should be in a position to decide whether new materials that it is asked to authorize will fulfill the requirements of its building law. It is not enough that its officials should be in a position only to shrug their shoulders and point to a by-law which takes no account of novelty. There

is testing done already by municipalities. Since cement and asphalt came into use, the means of testing the quality of shipments of these materials is a necessity for every municipal engineer. It is only necessary to extend operations so as to meet the needs of the department of buildings. To the machinery already in use for applying tensile tests it would be necessary to add only machinery for compression. Arrangements for the application of heat or cold are easily made or extended.

It would not involve much work to test all new material. But another class of testing is suggested which is really another question. The anxiety that surrounds the use of cement would dissolve before certainty that it had been all tested. This seems too great an undertaking to be assured. But it is not so impossible as it seems. One output of a cement mill does not vary much in quality and it amounts to many car-loads. One test per carload is therefore sufficient. And it is conceivable that all the carloads that enter a city might receive the municipal test at a charge to the dealers in cement which would add inappreciably to the cost of cement to the consumer.

To Control the Effect of High Building.

A tall building is a pleasant abode when its windows look out freely to the sun and air; it is not so pleasant nor so wholesome as an abode when its windows look into a tall well. There is still another stage, when windows which once looked out on the sun and air are blocked by the contact of another tall building that has risen on the adjoining lot and all offices on this side must be lighted by artificial light and get their air from the passages. This is looking at the question from within. Viewed from without, tall buildings at intervals make a picturesque street and one that is not unsanitary; rather, one would say, the varied heights and fields of surface must vary in temperature so as to increase the movement of air. And the sun is not excluded from the streets to an injurious extent. But, when these buildings become continuous, the streets are transformed into narrow clefts which it cannot be good to live in. From all points of view then it is desirable to keep tall buildings apart; to have them rising like towers at intervals along the street. All interests would be served by this; the streets would look fine and would be habitable, and the buildings themselves would afford the greatest satisfaction to their occupants and the greatest value to their owners.

The question is how this desirable condition is to be reached. Obviously permission and restriction, as regards building high, cannot be dealt out alternately to owners of property along the street. The only way, and this is quite possible and quite reasonable, is to require that companies, proposing to erect buildings above a certain height, shall acquire enough land on either side to provide for the proper clearance of their upper storeys. Tall building therefore would always have the form of an inverted T. The top of the horizontal member would combine the functions of cornice line for the street and crowning member for the base of the tall portion of the building. The street composition, which in its abstract form may be represented thus ⊥⊥⊥, has an illustration in the concrete in the lower part of Broadway, New York, where the accidental collocation of a couple of tall shafts with a three-storey bank between (its cornice running with their base cornices) shows how fine, and how consistent with a Parisian nicety of street design, such a system of building would be. Its justification on this ground alone might not obtain an easy recognition in Canada, but the practical advantages to both building owners and the public are of a material kind and are obvious.

Danger in Alterations.

The collapse of floors in the Meyers department store, at Albany, is an instance of a kind of accident that has happened before. The only wonder is that it does not happen oftener. According to the newspaper accounts a gang of Italian workmen were removing an iron column under the ground floor. They had propped up the floor, but evidently the means of support were insufficient, for, as soon as they loosened the column, down came all three or four floors over an area "fifty feet in radius", (the newspapers say), in the centre of the building. The accounts survivors give of how they noticed things slide off the counters, as the floors began to cave, is graphic and horrifying. Attendants slid down in the same manner into the gulph. The actual extent of the disaster, as regards loss of life, was not apparent until the ruins were cleared away, and this process seems to have outlasted the interest of our newspapers. The indications were, however, that the loss of life would be unexpectedly small. For one thing the accident happened immediately after the day's work began. But it might have been otherwise, and may be otherwise on some other occasion when alterations are being carried on in an occupied building. If in this case the work was being done with proper precaution, as one would think likely in a building of so much importance, the result only emphasizes the difficulty of keeping clear of danger in altering existing work. Yet in this field the "practical man" is paramount, and often shows his practicalness by the way he is able to run close to the margin of safety without harm. Once in a way an accident happens, but not always while the work is in progress. Some time afterwards, perhaps years afterwards, there is a collapse, and investigation shows that there has been too much cutting, too wide trimming, too long a span—some condition of affairs that at first hand, when the building was in process of construction, would not be thought of for a moment. When the building has stood for some time, its coherence, which experience shows is actually the greater for the setting and settling together of its parts, seems much more difficult to upset. Then the man with a saw in his hand, that one sees performing internal operations on floors, has a confidence in the mutual support of the parts of a structure which, however remarkably it is justified in experience, does not make for the safety of the public. He may at any time meet the special case which requires a special analysis if it is to be handled with safety; and the habit of mind that is likely to give this analysis is not his habit of mind, that of the practical man whose readiness to do is based on assurance, so much as that of the scientific man whose only certainty being demonstration always starts from the point of doubt. It is this latter kind of workman—the architect or engineer—who should be in charge of structural alterations in most buildings and certainly in occupied buildings.

GARDEN CITIES AND SUBURBS.

Many movements, indeed most movements, which find their field for working out on this side of the Atlantic, will be found to have their origin in England. The Garden City and Garden Suburb projects will no doubt turn out to be one of these steps forward in modern life.

Two years ago, as a consequence of a book promulgating a Garden City Scheme, a large area was purchased in Essex by a company of philanthropic investors and called Garden City. It was opened with some ceremony and is now in process of development. Since then, in the course of this year, a second project has been started at Hampstead under the name of the Hampstead Garden Suburb.

Since the time of the Tudors, Eton College has owned an estate of 320 acres, adjoining Hampstead Heath and making part of a celebrated view. Hampstead Heath is to have 80 acres of this estate and the rest at a price of £470 an acre, has been handed over to Mrs. Barnett, (wife of the clergyman who established Toynbee Hall, the University Settlement at the east end of London), and a committee of public spirited noblemen and gentlemen, under the name of the Garden Suburb Trust.

These schemes are the outcome of a tendency to seek the country for residence which is just as marked as the tendency to seek the city for work. The very flow towards the city is that which, by increasing the density of its population, makes it undesirable as a place to live in and causes the counter-flow towards the country. To this end electric railways and motor conveyances contribute, so that suburban residence is a natural state of affairs now-a-days.

The suburbs themselves are, however, seldom satisfactory as a refuge, either in London or on this side of the water. They are compounded of building speculations in which, in so far as the speculators think of beauty at all, they think of it only as it affects their own land, without reference to that of their neighbors. There is no general design, only more streets added to the town. There is no difference from the rest of the town but in the more open character of the streets. There is no variety of public and private space ; no composition of functions, or classes ; but long strings of houses, all of the same kind.

Garden City is as far from this as possible because it is a complete town in itself. Even factory sites are included. It is distinctly not an attempt to get "back to the land", or to realize again any condition of affairs that is past or belongs to other situations; but is a proposal to make an ideal city with the existing conditions of town life; a purely artificial creation, beginning with vacant land. Without doubt, as the place is only an hour or so from London, there will be many residents who will go to London to do their daily work; but Garden City will have a life of its own, and will acquire interest thereby.

The Hampstead Garden Suburb is more directly in the line of suburban development. It is a true suburb and, though there is public spirit at the bottom of the scheme, it is not intended to be in any way a gift, but will be as truly as the builders' work a speculative venture. The one point in which it is peculiar is that a good piece of land will be developed on a plan, so that profit will not be separated from the amenities. Here is the Times' account of the intentions of the trustees :

"Plans have been prepared for the treatment of the whole estate, with a view, not to covering it with the greatest number of houses, but to preserving the best features of the land, giving every house a pleasant prospect, interspersing buildings in every part with public open spaces and private gardens, and providing houses adapted to every pocket. On one of the best sites will stand a group of public buildings, a church, a chapel, a public hall, a public library and picture gallery, and a club. Schools and school playing fields will find their proper place. In one spot a piece of water will be the central feature; another part of the ground slopes down to a running stream. In addition to houses of all sizes, from the large villa overlooking the Heath to workmen's cottages, it is suggested that quadrangles of chambers or flats should be provided for single men and women, where some joint management may relieve the inmates—the old as well as the young—from the cares of individual housekeeping. The existing timber will be carefully preserved, and all the roads will be planted. Nowhere will nature be shut out; within sight of every house will be waving trees and pleasant greensward. If only the ideas of the Trust can be realized, there can be no doubt that, in place of the dull builders' roads and rows of monotonous cottages which are the common feature of the suburb, a very agreeable quarter will have been added to this gigantic and ever-extending metropolis."

This seems a good deal to get into 240 acres but the laying out must be done compactly in order to pay, and the scheme will not be realized as an ideal unless it does pay. As the *Times* says, "it will be necessary to form something in the nature of a land company ; and the problem will be that of the ordinary development of a building estate, with this difference that the regulations and conditions which are of the essence of the scheme may somewhat postpone the realization of profits, while eventually they will largely increase the value of the property." Eton College is said to be prepared to arrange easy terms of payment. This is an essential condition of carrying out any largely conceived scheme. The initial expenses in the way of roads, etc., will be large in proportion to the early returns—to say nothing of experiments which, in a first venture, may not succeed. But in no long time an estate laid out in this manner, in the neighbourhood of London or of any large city, must become valuable.

The exact conditions of development—whether the company should itself undertake building operations, and how far it should keep control of the land—are a matter which may receive different decisions in different places. In London the building lease is in common operation and seems a sufficient means of maintaining the peculiar character of such an estate.

The success of this scheme is of much wider interest than as it applies to the preservation of Hampstead and the amelioration of life in London. It is a common complaint of early residents in outlying districts of a town that the beauty of neighbourhood which attracted them and makes the charm of their homes is destroyed by the haphazard growth of building about them. This might be prevented by concerted action in the acquisition and control of land to preserve features and

characteristics, which are at the bottom of the neighbourhood's attraction. If, as it seems, this is the day of large dealings, here is a field for the application of the principle. Building schemes already extend beyond the mere edifice to the grouping of buildings and the planning of precincts and even districts. The Garden City and Garden Suburb schemes are no doubt a consequence of the Port Sunlight and other ideal settlements which, did not themselves aim at direct commercial success ; and a successful undertaking on ordinary lines will be sure to lead the way to further openings for not only does the setting of private residences demand larger treatment, but "housing questions," which occupy so much public attention, are more easily treated as part of the growth of a district than as an isolated scheme.

THE BLANK SIDE OF TALL BUILDINGS.

The prominence of monotonous side walls in New York does a great deal to mar the effect of the sky-scrapers, not only from the unpleasant suggestion of skin-deep beauty which they give to the rather over elaborated fronts but from the perpetual suggestion of unpermanence, which is of all things the most hostile to architectural effect. There is evidently an anticipation of change. The blank side is more than unencroaching ; it shows an expectation of encroachment ; so imminent that it is not thought worth while to finish that side.

No. 60 Wall Street, New York.

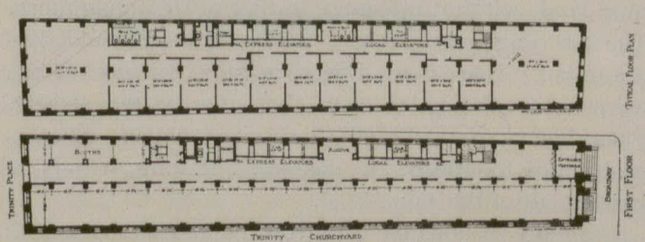
Messrs. Clinton and Russell, have, in the erection of No. 60 Wall street, offered a good suggestion for finishing these too prominent sides which does away with the crude appearance and suggests no more than the restraint of projection on the side of a neighbouring lot. The idea is not entirely new in New York but it is here conspicuously well carried out. The material is only brick, dark and light. The illustration takes no account of a difference in costliness of material between the front and side and in that respect perhaps suggests more than the actual building would the possibilities of colour design for tall buildings.

Proportional projection to emphasize the top of a tall building is out of the question. The substitution of superficial area of ornament for its projection has already been made in this part of the building, but is still unsatisfactory because of its meaninglessness. There is no actual motive for the upper ornamentation but that of covering a certain area with encrustation, and the ingenuity required to combine sufficient features to produce the required result is a piece of draughtsman's work that is not impressive, even when largely done, because of its very ingenuity ; because, that is to say, the actual construction does not, we know, suggest anything of the kind. There is indirectness about the way of getting the necessary ornamentation. Apparently there are colonnades, arcades, rows of pedimented windows or what not, and to these our attention is directed. We ourselves discover what is the real design—that all this enrichment differentiates the upper division of the building so as to make of it a crowning member of the composition.

It would be more forcible to differentiate the upper member in a more direct manner, by some means that would be used obviously for that reason and for none other. Ornamentation by colour would be such means. It is rational because it can be done on the scale necessary for being seen from the street level—which colonnades and canopies, proportional in themselves, cannot be. How the two methods compare can be seen in the above cut of 60 Wall Street, in which the flat side, with some assistance from string courses and a gable, competes not badly with the front.

THE NEW TRINITY BUILDING.

The new Trinity Building runs through from Broadway to Trinity Place, a distance of 265 feet, but is only 47 feet wide at the widest end. It rises 21 storeys or about 290 feet. With the exception of end rooms, or rather spaces for subdivision, the offices have no exposure to the street but, looking into the comparative safety of Trinity Churchyard have polished glass windows. On the street side, which is occupied almost entirely by elevators, lavatories, booths, etc., the windows are filled with wired glass.



The steel work is protected by hollow tile fireproofing. The floors have 10-inch flat arches, end construction, with 2-inch soffit protection. The roof is 3 inches thick and the partitions are 4 and 6 inches. All columns and girders are furred with 3-inch blocks. The east, south and west walls consist mainly of 2- and 3-inch furring on terra cotta. The north wall (Thames street side) is a brick curtain wall. The stairways are enclosed in hollow tile partitions with tin-clad doors at the openings. The elevator shafts are enclosed in grillework backed with wired glass. There is a great deal of bronze work in the halls and corridors, and wood trim in mahogany treated to render it fire retarding. The above details are taken from *Insurance Engineering*.

Gold of all decorative materials requires good taste for its proper use. It may be used lavishly for magnificence or sparingly for refinement ; a middle course produces only dullness, an expenditure of material without result.

OUR ILLUSTRATIONS.

ROYAL CANADIAN YACHT CLUB HOUSE, ON THE ISLAND, TORONTO.—MESSRS. SPROATT AND ROLPH, ARCHITECTS.

The plans of this building, reproduced in our illustration sheets, were intended to be reduced one half, but are a little over 1 ft. to 1/16 in. The Yacht Club grounds on the Island consist essentially of a perfectly level bowling green fringed with trees, lying, not many feet above the water level, between the front of the island, on Toronto Bay, and one of the lagoons which run up into the island, on the bay side, and give it such an extent of shore line and of water surface in its interior. In every direction there are beautiful views; so much so that in order to give a full conception of the Club House, site and all, it would be necessary to devote as much illustration space to views from the Club House as to the building itself.

The question of placing the house on the grounds was not without complications. The architects, in their original sketch placed the building with its back on the lagoon (which is to the left of our views) and the front facing the bay, looking over the bowling green to a panoramic view of Toronto across the water, with the yachts in the foreground to give perspective to its distant masses. This was abstractly the right position and pleased the yachtsmen; but the bowlers, who are important users of the club, thought it desirable to have the building placed so as to give more space to the bowling green and let the verandahs overlook its length. The building is thus placed end on to the bay and fronts upon the greatest extent of lawn. This site gives the building the best chance to be seen to advantage from the land, and it extends its length across the end of the lawn with great dignity. The essential excellence of Mr. Sproatt's design is the way in which he has avoided the scaffold appearance of a double verandah by treating the verandah solidly in detail, and by bringing forward to its face the central motive of the porch and the substantial end pavilions. The verandah is the building; and it ought to be so, for the building is meant only for summer habitation. It is worth noting in this connection, that there is no special entrance and nothing in the form of a door. All the windows open down to the floor, and all are equally a means of entrance from the verandahs to the club-rooms which give upon them. The dining room windows, which open down to the floor also, have their exit to a sodded quay about 10 feet wide, which is not shown in the plan but forms the shore line at that part and is the cause of the cant given in plan to the dining room. As may be imagined the dining room has a refreshing look-out for a summer evening. The quay outside the windows, being below the floor level, hardly appears; only the tree trunks in the foreground give a hint that the water, which fills all the view from the windows, does not come up to the wall of the house. There is a picturesque view along this side of the house, and from the end of the dining room which lies on a point of land overlooking the lagoon.

The ladies' room shown above the dining room is for the use of guests. Besides the dinners in summer, one of the great functions of the club is an annual ball, for which the large club room upstairs has a floor prepared. This room, which is 81 ft. long by 25 wide has an open timber roof of queen-post trusses filled in for enrichment with additional posts. To light and ventilate this roof is the function of the dormer windows on the front. For the sake of economy the roof has neither purlins nor rafters. It consists only of principals and boarding; but the boarding (to carry the span) is 3 inch planks, tongued and grooved. To these the shingling is nailed. The roof and all interior woodwork (including the furniture) has a dead black finish.

To return to the exterior. There is no doubt of its success as a piece of design. Though but just completed it has the extraordinary effect, conveyed by all good work, of belonging to its place and having always been there. But how about the abstract problem, the design of a wooden building? There is no question but that Mr. Sproatt has bilked that question by keeping all the meanness of his wooden walls in the shadow of his massive verandah with its unconstructional stone proportions. The only place where the wooden wall appears is in the subordinate extension for the locker room; and here he has projected a pergolic trellis, as an invitation to the club to train up a vine and let it overhang the clap-boarding, to give some character to a wall which, from the material of its construction, lacks it. The club had better accept this invitation; it will suffice for their purpose. But as a demonstration of how a good designer feels towards wood as an architectural material this expedient amounts to an expression of opinion that it is inadequate.

CHEAP COTTAGES.

We have had applications for designs for cheap cottages and propose to devote a page of our illustration sheets as often as we can to this type of work. It is not easy to procure good designs for cheap houses. The cheap house is neither easy to make attractive nor is its design usually in the hands of men who have the greatest gift in that direction. We are making an effort to get some original designs but in the mean time have received some English designs which deserve fuller notice when we have space. The housing question in England has a rural side which has been causing a good deal of agitation. It costs the agricultural land owner, under the county building laws, more to build a cottage than the labourer can afford to pay in rent. The result is an added impetus to the movement from the country to the towns that is so deplored by Englishmen, and, after the usual correspondence in recognized organs, by means of which the English nation has a way of going into committee of the whole, it was decided that a cottage costing about £150 was the desideratum, and an exhibition of such cottages has been held in the most effective way by building about a hundred of them as permanent structures in the Garden City. From this exhibition we select this month one design which seems practical—a pair of cottages by Geoffry Lucas, A.R.I.B.A. The cost in England was about $2,000 for the pair. We should require to raise them a little above the ground and have a partial excavation and a porch. It is highly probable on the other hand that we should omit half the flues, though it would be better to leave them to help the circulation of warm air.

The front rooms are 14′ 6″ × 10′ 6″ with a kitchen or living room behind of the same length and 10′ 7½″ wide. The ingenious arrangement by which the

stairs occupy a narrow strip of space in the middle of the house is interesting. The scullery is 6′ 6″ × 5′ 6″. The height of this floor from floor to ceiling is 7′ 6″. The bedrooms are 14′ 6″ × 8′ 3″, 12′ 9″ × 7′ 3″, and 9′ 9″ × 7′ 10″; and the ceiling height (maximum) is 10′ 0″. The walls are of 9-in. brick; the roof is tiled. The ground floor is concreted, with wooden sleepers and floor over it. The windows are mostly double hung, and, as the illustration shows, have not the wretched expedient for cheapness of opening only at the bottom.

Our second illustration is of a cottage, not a portion of the Garden City exhibition but also apparently actually built for less than £300—or $1,500—the pair. The illustration was supplied to the Country Gentleman's Estate book by Mr. J. M. Hotchkiss who gives a full list of the items of cost saying they are "what I have paid and am paying." The figures are worth giving, not so much from their value as a guide to prices here as that the list of items is equivalent to a specification and shows the quality of the work.

	s	d	£	s	d	£	s	d
Excavator and Drainer.								
24 cubic yards, Excavation, etc	0	8	0	10	0			
40 yards 3-inch Field drain	0	3	0	10	0			
2 connections to fall-pipes	2	6	0	5	0			
30 yards 4-inch Glazed socket drain	1	0	1	10	0			
2 Gullies	7	6	0	15	0			
7 yards 4-inch C. I. Vent pipe	2	0	0	14	0			
2 outlets to drains	5	0	0	10	0			
						4	14	0
Bricklayer.								
24 yards 14-inch Walling, including footings	7	0	8	8	0			
165 yards 9-inch Walling, including footings	5	0	41	5	0			
50 yards 9-inch Walling (measured solid in chimneys), including forming flues, etc	4	0	10	0	0			
80 yards faced concrete floors, including 6-inch thick under 4½-inch walls	3	0	12	0	0			
100 yards 2½-inch Walling	3	0	15	0	0			
4 Concrete hearths	2	0	0	8	0			
7 lineal yards 14-inch Damp course	0	5	0	2	11			
60 " 9-inch " "	0	3	0	15	0			
36 " 4½-inch " "	0	1½	0	4	6			
6 square yards Concrete ceiling to ash closet	4	0	1	4	0			
30 lineal yards Cement skirting	0	6	0	15	0			
70 square yards Brick on edge in half-timbering	2	6	8	15	0			
2 Cottage ranges	60	0	6	0	0			
4 Bedroom grates	7	6	1	10	0			
2 Washing pots, grates and doors	12	6	1	5	0			
						107	12	5
Carpenter and Joiner.								
60 cubic feet Timber, machine dressed, in floor joists	1	9	5	5	0			
7 squares, Labour and nails, in do	3	6	1	4	6			
800 square feet 1-inch Flooring boards	0	1½	5	0	0			
8 squares, Labour and nails	5	0	2	0	0			
100 cubic feet Home-grown timber (allow for haulage, sawing, etc.), per cubic foot	1	0	5	0	0			
240 Mortises and tenons, including fixing	0	9	9	0	0			
Extra labour, etc., in porches	—		1	0	0			
28 cubic feet Timber in framed partitions	1	6	2	2	0			
9 squares, Labour and nails in do	5	0	2	5	0			
80 cubic feet Timber in roof	1	6	6	0	0			
15 squares roofing (Labour and nails)	6	0	4	10	0			
20 cubic feet Timber in ceiling joists	1	6	1	10	0			
4 squares, Labour and nails in do	4	0	0	16	0			
12 lineal feet Barge boards, complete	0	6	3	6	0			
30 lineal feet Eaves boards, complete	0	3	0	10	0			
42 Stairs, complete at per tread	4	0	5	4	0			
2 Front doors, complete	30	0	3	0	0			
2 Back doors, complete	22	6	2	5	0			
18 inside doors, complete	17	6	15	15	0			
164 square feet Windows, complete	1	6	12	6	0			
50 square feet Cupboard fronts, complete	0	7½	1	11	3			
124 lineal feet 11-inch by 1-inch Shelving, complete	0	4½	2	6	6			
2 Morrel's ash closet, fixed complete	100	0	10	0	0			
240 lineal feet Skirting strips	0	3	3	0	0			
2 Shelves to kitchen mantel	—		1	0	0			
2 Pot lids, etc	—		0	10	0			
						106	6	3
Slater and Plumber.								
170 square yards slating	3	6	29	15	0			
58 lineal feet Ridge	0	6	1	9	0			
56 lineal Eaves gutters, including specials	0	5	1	3	4			
48 lineal fall pipe, including specials	0	5	1	0	0			
5 cwt. sheet lead at, including laying	20	0	5	0	0			
Plasterer.								
70 square yards Rendering in cement to panels of half timbering	1	6	4	15	0			
280 square yards Lath and plaster to framings and ceilings	1	6	21	0	0			
222 square yards Plastering	1	0	11	2	0			
						36	17	0
Painter.								
Painting all wood and iron work and twice oiling half timbering						6	0	0
						£299	17	0
If instead of half-timbering, the outer walls of bedroom were framed with 4-inch deal, and covered outside with laths and cement rough cast—								
From	—		—			£299	17	0
Deduct: Sawing, etc	—		£5	0	0			
Labouring, framing, etc	—		9	0	0			
Brick on edge filling	—		8	15	0			
Rendering in cement	—		4	15	0			
						27	10	0
Leaving	—		—			£272	7	0
Add: 60 cubic feet Timber	1	8	5	0	0			
8 squares, Labour, etc.	10	0	4	0	0			
82 yards filling cavity, lathing and rough casting	2	6	10	5	0			
						19	5	0
						£291	12	0
If the walls were carried up to the roof in brickwork from	—		£272	7	0			
Deduct 140 yards Lathing	0	6	3	10	0			
			268	17	0			
And add 80 yards 9-inch Work	5	0	20	0	0			
Making cost						£288	17	0
And if the portion above floor joists were rough cast Add to			£288	17	0			
80 yards Rough cast	1	6	6	0	0			
						£294	17	0

It is explained that the work is accomplished at this cost by careful buying of material in the best market and of suitable sizes, and by letting the work by measurement at reasonable prices.

The dimensions of rooms are as follows:—Kitchen, 14′ × 10′; parlour, 12′ × 10′; scullery, 9′ × 7′; larder, 9′ × 3′; bedrooms, 10′ × 11′, 10′ × 10′ and 9′ × 10′.

BOOK REVIEW.

THE SANITATION OF A COUNTRY HOUSE BY DR. HARVEY B. BASHORE. PUBLISHED BY JOHN WILEY & SONS, NEW YORK. PRICE $1.00. The aim of this work, as stated in the preface, is to make the country as healthy as the city. It is true that summer resorts sometimes bring sickness instead of health; that there are rural localities which have more typhoid fever per population than our great cities; and Dr. Bashore declares that it is from the country that the cities get twenty five per cent. of their typhoid cases. His contribution to the prevention of this state of affairs is addressed to both persons who build in the country, for permanent residence, and to summer visitors and campers. To the latter he gives warning chiefly about water supply and disposal of wastes. "The price of pure water, wherever you go, is everlasting and unremitting vigilance," and his advice for open water supply, by streams, is "to see the other end to its 'uttermost parts'." For the use of springs and wells the same consideration must be applied to the geographical strata through which the water comes, but he gives no rules to make this easy. If it is necessary to take water from a suspicious stream, he recommends the plan practiced by the natives of India, who dig little holes in the sand of the shore until they get below the water level, and so, when the holes fill with water, get water which has filtered through the sand and is safer than the raw water of the stream.

The matter of waste disposal at summer camps is a matter which is within command, and Dr. Bashore's directions are good and easily followed.

For permanent building in the country there are matters to be considered of which we have little cause to think in town and, it is to be feared, think little in the country. "Ground-water," "ground-moisture," and "ground-air," are all to be considered in building the cellar. If ground-moisture is bad in absorptive soils, permeable soils, which offer less of this danger, must make good going for ground-air which is no less unwholesome. This which is the product of decomposition and putrefaction processes, continually going on in the soil, has an undue proportion of carbonic acid gas, ammonia, hydrogen, ammonium sulphide

and marsh gas. Wind, rain and frost all compress it, and, if a cellar is not properly protected, it constitutes an area of diminished pressure into which the ground air passes and thence into the house above. So the precautions necessary in building a country house begin at the beginning.

The book is not long and its matter will not be new to persons having a good knowledge of sanitation, but the points to be considered are brought together in a manner that has the merit of being very readable.

SAND-LIME BRICK.

The use of Sand-Lime brick is not precisely a new idea. Brick made by a similar process have been made in Germany for some time and are said to have been used for government buildings ; which (in Germany) is a mark of excellence. The strength and durability of lime mortar are already known to be equal to that of brick. The old brick buildings in Spain have 2 inch bricks and inch joints so that they are one-third built of sand and lime. The writer has stood upon the springing of a Roman barrel vault of stone which, though the crown has fallen long ago, still holds up, and overhangs the perpendicular by means of the tenacity of its mortar.

Mr. H. C. Duerr, Secretary of an Association formed in the interest of the Sand-Lime brick industry, gives this account of the process of manufacture.

"The process of manufacturing Sand-Lime Bricks is very interesting and illustrates the value of science in shortening Nature's methods. Chemically these bricks resemble Indian Sandstone, but they are free from the flaws and fissures which make stone perishable when sudden contraction and expansion take place through climatic changes or conflagration. The materials are pure sand silicate and high calcium lime, which acts as the bond. These ingredients are thoroughly mixed until every particle of sand is coated with lime, and as the sand is graded in size, the interstices are filled when the mixture is put under a heavy pressure in the moulds. The bricks are piled on cars and run into a hardening cylinder where the pressure is 150 pounds from ten to twelve hours. As soon as the bricks are cool they possess a clear metallic ring and are ready to be laid at once in the wall. The entire process does not require more than 24 hours. These bricks, like some quarried stone, grow harder in time as they remain exposed to the air, for the chemical union of the ingredients continues its process for some time."

The best Sand-Lime bricks are low in porosity and there has already been a fire in a large furniture warehouse built with them which left the walls standing with the same appearance (in a photographic illustration) as if they had been built of clay brick.

The brick find favour with the contractors because they are uniform in size, as they are all pressed in moulds and are not expanded, contracted or warped in the process of manufacture. The eveness of size makes building and bonding the easier.

They are said, by the writer quoted above, to "possess unlimited possibilities, from an architectural standpoint, because they can be made of any colour and shade". We may wait for more certain demonstration of this. The permanent building colours that we know of, in brick and terra-cotta, are the result of colouring matter in chemical combination with the material before the application of heat. A mechanical mixture has not the same certainty of result. In the application of colouring matter to the formation of concrete promise has so far resulted in nothing. In the meantime the natural colour of the Sand-Lime brick is said to nearly approach that of Indiana limestone, and that sounds like good architectural colour. For stonework the lightest coloured stone is best as it gives full value to planes and to details. Brick is rather a question of mass, bnt the shadows still have value, and a light colour is associated in our minds with dignified architecture.

What the special liability to imperfection is in Sand-Lime brick has not yet been made public, but there must be chances of irregularity in an artificial product of sand and lime against which it is necessary to guard. Prof. Ira H. Woolson, of Columbia University, has been making experiments on behalf of the Bureau of Buildings of New York, which cover not only this material but various artificial stone products and concrete bricks, and has arranged his results in the form of a specification of tests which (as it comes to us in an exchange) we have printed below. The disadvantage of the artificial building materials is the necessity of tests of a rather elaborate nature but there is no other way to certainty.

RULES FOR THE TESTING OF NEW MATERIALS IN CONSTRUCTION.

The Bureau of Buildings of the Borough of Manhattan, have gone into an investigation as to what specifications should govern in the acceptance of the newer building materials. This was made necessary by the introduction of such new materials as sand brick, cement brick and hollow concrete blocks. Common building brick having been accepted as having sufficient strength, they were taken as the basis on which to fix the specifications and the bureau proceeded to find what strengths were indicated by the common building brick. Therefore the series of tests were carried out by Professor Ira H. Woolson, Adjunct Professor of Mechanical Engineering at Columbia University, New York City, with a view to determining such factors as were necessary to the selection of proper specifications. The method of operation and details of the test were recently published in Engineering News.

Prof. Woolson finds as a result of these tests that figures for transverse strength given in engineering books, show results from 20 to 50 per cent. too high. There also seems to be no conformity between the transverse and crushing strength, or between strength and absorption. The crushing strength of common brick, as represented by the product of the Hudson River Valley, is close to 4,000 pounds per square inch. When crushed wet, this figure is always lower from 10 to 45 per cent. For absorption tests, Prof. Woolson recommends only partial immersion. He also recommends that the methods of testing bricks should be standardized, so that results will be comparable.

As a result of the above tests, the following regulations have been formulated by R. P. Miller, chief engineer of the Bureau of Buildings, and approved by Isaac A. Hooper, superintendent of buildings, Borough of Manhattan, New York City:

(1) The regulations are to apply to all such new materials as are used in building construction, in the same manner and for the same purposes as natural stones, brick and concrete are now authorized by the building code.

(2) Before any such material is used in buildings, an application for its use and for a test of the same must be filed with the superintendent of buildings. A description of the material and a brief outline of its manufacture must be embodied in the application.

(3) The material must be subjected to the followed tests: Transverse, compression, absorption, freezing and fire. Additional tests may be called for when, in the judgment of the superintendent, the same may be necessary. All such tests must be made at some laboratory of recognized standing, under the supervision of the engineer of the Bureau of Buildings. The tests will be made at the expense of the applicant.

(4) The results of the tests, whether satisfactory or not, must

be placed on file in the Bureau of buildings. They shall be open to public inspection, but need not necessarily be published.

(5) For the purpose of the tests, at least 15 samples or test pieces must be provided. Such samples must represent the ordinary commercial product. They may be selected from stock by the superintendent of buildings, or his representative, or may be made in his presence at his discretion. The samples must be approximately 8 inches long, 4 inches wide and 2 inches thick. In cases where the material is made and used in special shapes or forms, full size samples may also be called for and tested in such manner as may be directed by the superintendent of buildings to determine the physical characteristic specified in Regulation 3.

(6) The samples may be tested as soon as desired by the applicant, but in no case later than sixty days after manufacture.

(7) The weight per cubic foot and specific gravity of the material must be determined.

(8) These tests shall be made in series of at least five, except that in the fire tests a series of two (four samples) is sufficient. The transverse test shall be made first on full-size samples (8x4x2 inches). The resulting half samples are then used for the compression and absorption tests ; but in no case must both halves of the same piece be used in any series. Half samples may also be used for the freezing and fire tests under the same restrictions. The remaining samples are kept in reserve, in case unusual flaws or exceptional or abnormal conditions make it necessary to discard certain tests. All the samples must be marked for indentification and comparison.

(9) The traverse test shall be made as follows: The sample shall be placed flatwise on two rounded knife-edge bearings set parallel, 7 inches apart. A load is then applied on top, midway between supports, and transmitted through a similar rounded edge, until the sample is ruptured. The modulus of rupture shall then be determined by multiplying the breaking load in pounds by twenty-one (three times the distance between supports in inches), and dividing the result by twice the product of the width (approximately four) in inches, by the square of the depth (approximately two) in inches.

(10) The compression test shall be made as follows: The sample must first be thoroughly dried to a constant weight. It must be carefully measured, then bedded flatwise in plaster of paris or blotting paper, to secure a uniform bearing in the testing machine, and crushed. The total breaking load is then divided by the area in compression, in square inches.

(11) The absorption test must be made as follows: The sample is first thoroughly dried to a constant weight. The weight must be carefully recorded. It is then placed in a pan or tray of water, immersing it to a depth of not more than ½ inch. It is again carefully weighed at the following periods: 30 minutes, 4 hours, and 48 hours, respectively, from the time of immersion, belng placed in the water in each case as soon as the weight is taken. Its compressive strength, while still wet, is then determined at the end of the 48 hours period, in the manner specified in Regulation 10.

(12) The freezing test is made as follows : The sample is immersed as described in Regulation 11, for at least four hours, and then weighed. It is then placed in a freezing mixture or a refrigerator, or otherwise subjected to a temperature of less than 15 degrees Fahrenheit for at least 12 hours. It is then removed and placed in water, where it must remain for at least one hour, the temperature of which is at least 150 degrees Fahrenheit. This operation is repeated twenty times, after which the sample is again weighed while still wet from last thawing. Its crushing strength should then be determined, as called for in Regulation 10.

(13) The fire test must be made as follows : Two samples are placed in a cold gas furnace, in which the temperature is gradually raised to 1,700 degrees Fahrenheit in on hour. One of the samples is then plunged in cold water (about 50 or 60 degrees Fahrenheit), and results noted. The second sample is permitted to cool gradually in air and the result noted.

(14) The following requirements must be met to secure an acceptance of the materials : The modulus of rupture must average 450, and must not fall below 350 in any case. The ultimate compressive strength must average 3,000 pounds per square inch, and must not fall below 2,500 in any case. The percentage of absorption being the weight of water absorbed divided by the weight of the dry sample, must not average higher than 15 per cent. and must not exceed 20 per cent. in any case. The reduction of compressive strength must not be more than 33 1-3 per cent., except when the lower figure is still above 3,000 pounds per square inch, the loss in strength may be neglected. The freezing and thawing process must not cause a loss in weight greater than 10 per cent., nor a loss in strength of more than 33 1-3 per cent., except that when the lower figure is still above 3,000 pounds per square inch, the loss in strength may be neglected. The fire test must not cause the material to disintegrate. (Note—No great stress will be laid in this last test.)

(15) The approval of any material is given only under the following conditions :

(a) A brand mark for identification must be impressed on, otherwise attached to, the material.

(b) A plant for the production of the material must be in full operation when the official tests are made.

(c) The name of the firm or corporation, and the responsible officers, must be placed on file with the superintendent of buildings, and changes in same promptly reported.

(d) The tests must be repeated at any time when called for, on samples selected from the open market, when there is any doubt whether the product is up to the standard of these regulations.

(e) In case the results of tests made under this condition (d) should show that the standard of these regulations is not maintained, the approval of this bureau will be at once suspended or revoked.—*The Improvement Bulletin.*

SPECIFICATIONS OF FIRE-ESCAPES.

The following specification, prepared by a special committee authorized by a meeting of Architects and Fire-Escape Manufacturers held some months ago, has been sent to us from the office of the Inspector of Factories for Ontario. A note accompanying the specification states that the provisions here laid down are prepared for discussion at a meeting to be held at an early date:

BALCONIES.—Balconies must not be less than the full width of opening or openings leading to them, and are in no case to contain less than twelve square feet of floor space or be less than 2 wide. There must be a clear floor space of at least twenty inches between the top of each flight of stairs and the railing opposite and a clear floor space of at least 27 inches between the lowest tread of each flight of stairs and the railing opposite. Balconies requiring a passage at side of stairways or well holes must have a clear passageway of at least 20 inches.

Balconies shall have railings at least 2′ 10″ high on all sides excepting where stairs lead off end and at open ends of bottom balconies. Railings to have handrail and corner posts constructed of 1½″ x 1½ x 3/16″ angle iron and 1¼″ x 1¼″ flat iron standards between, not more than 2′ 0″ apart, rivetted to top and bottom rails. The space between standards to have 1¼″ x 1¼″ iron bars placed crosswise and separately rivetted to top and bottom rails.

STAIRS.—All balconies are to be connected by stairways. The strings of these stairs shall be constructed of at least 4″ channel iron, 5¼″ lbs. per foot, and have steps of at least 6′ tread and not more than 10″ rise, rivetted to strings with at least two ⅜″ rivets at each end. Treads may be had of stamped or perforated steel 3/16″ thick, having a 1¼″ flange on all sides, or the treads may be constructed of a frame work of 1¼″ x 1¼″ x ¼″ angle iron with one or more 1½″ x 3/16″ flat bars placed lengthwise in centre, the bars so spaced that there shall not be more than 1″ open space between bars or between bars and angle iron.

All stairs shall be provided with an outer railing 2′ 6″ high, measured perpendicularly from nosing of steps, and all stairs not placed close to wall must have an inner railing of similar construction. These railings shall have handrails of 1½″ x 1½″ x 3/16″ angle iron, supported by 1¼″ x 1¼″ x 3/16″ angle iron standards not more than 5′ 0″ apart, placed at right angles to strings, and railing to have an intermediate 1¼″ x ¼″ flat bar halfway between handrail and string. All to be securely fastened together. There must be a clear head room for all stairways of at least 6′ 9″.

BRACKETS.—Balconies to be supported by steel brackets spaced not more than 4′ 0″ apart, except where space is required to get head room for stairs, or in other cases where special permission has been given by the Inspector in writing. These brackets to be formed of angle steel of the sizes given in the fol-

lowing table built up with horizontal top chord, angle brace and perpendicular stay all strongly rivetted together with plates of the same thickness as angles in all cases. Each joint to have boiler rivets of the sizes specified in the table, to be hot driven. Top chord of bracket to be tied to wall by round iron bolt running through wall, of size specified in table and rivetted to angle with three boiler rivets of sizes specified, hot driven. Inside end of bolt to be provided with standard nuts and plate washer, this washer to have a bearing on wall of at least 48 square inches.

Angle braces of brackets to be at an angle with the wall of not less than 45 degrees or more than 60 degrees. The lower end of these braces to be split and turned into wall at least 3". Balcony floor to be supported between brackets by three angle irons, one at wall, one in centre, and one at outer edge. These angles to be same size as those specified for brackets.

Area supported by brackets.	Top chord braces and uprights.	Rivets.	Top chord wall tie.
6 sq. ft.	2 in. x 2 in. x ¼ in.	½ in.	1 in.
8 sq. ft.	2¼ in. x 2¼ in. x ¼ in.	½ in.	1⅛ in.
10 sq. ft.	2½ in. x 2½ in. x ¼ in.	⅝ in.	1⅛ in.
12 sq. ft.	2½ in. x 2½ in. x 5/16 in.	⅝ in.	1¼ in.
16 sq. ft.	3 in. x 3 in. x ¼ in.	⅝ in.	1¼ in.
20 sq. ft.	3 in. x 3 in. x ⅜ in.	¾ in.	1¼ in.
30 sq. ft.	3½ in. x 3½ in. x ⅜ in.	¾ in.	1½ in.

CURING CONCRETE BLOCKS.

By H. H. Rice, Denver, Colo.

The essential difference between the use of concrete blocks and monolithic construction lies in the opportunity afforded by the former of thoroughly curing the blocks before they are placed in the wall. Properly cured blocks are, at time of laying, as truly stone as though the formation had been effected by nature's process rather than by the art of man. In many cases, however, inadequate knowledge of the science of curing and failure to employ the practical precautions requisite to insure the best results render blocks totally unfit for use. It is more largely due to such ignorance and negligence than to any other cause that many persons have become prejudiced against the use of this eminently fit building material.

The great characteristic of cement is its hydraulic activity and resultant crystallization. Its value as a cementitious agent depends solely upon the thoroughness and uniformity of crystallization. The silicates cannot attain that full crystallization necessary for maximum strength and greatest durability without the maintenance for a considerable period of time of conditions both favorable and uniform.

The initial and final sets are but expressions denoting certain stages in the process of crystallization. The former denotes the attainment of a degree of strength in which the block retains its shape against a slight jar ; the latter denotes the attainment of rigidity akin to natural stone. Now, it is evident that whatever are the conditions producing the chemical action manifested in the intial set, they must be substantially maintained to secure the most efficient final set.

It is, however, evident that the requirements of such maintenance will vary according to the mixture used and the condition of the block when taken from the mold. In a medium mixture (a mixture from which tamping or pressure will cause water to slightly flush) there is somewhat more moisture than necessary for the initial set, and subsequent sprinkling from seven to ten days will suffice. In the dry mixture there is barely enough water for the initial set, and copious sprinkling should begin as early as may be possible without damage to appearance and continue for twenty or thirty days.

Time is of the essence of scientific curing. The exigencies of modern business tempt the block maker, almost beyond power of resistance, to shorten the time of curing and thus sacrifice quality for speed of construction. To this end curing by steam has been the subject of some experiments, the results of which demonstrate that steam accelerates partial crystallization, but the tests thus far made have failed to prove that the full strength of the cement is utilized, and until that be accomplished steam curing can scarcely be recommended. To rush partially cured blocks into a wall is an error so grave that the saving in time is no just compensation for the evil results which will surely ensue as the direct result of the absence of conditions requisite to a thorough scientific cure.

In stacking blocks in the curing yard let all faces be turned one way, and discoloration avoided by not allowing any part of one block to rest in contact with the face of another. Do not pile blocks one upon another, but avoid contact and permit free circulation of air by using pieces of lath between tiers.

In sprinkling use a fine spray and let it play on the back, as the impact of water will ruin a freshly made face. Let sprinkling be thorough and at such intervals that no portion of a block will dry out. Remember, always, that drying is not curing.

The failure to maintain a uniform condition of moisture during curing causes variation in contraction, and is responsible for most of the cracks developed. Uniformity of temperature should not be disregarded and may usually be sufficiently maintained by thorough sprinkling, provided that blocks are properly sheltered from the direct rays of the sun. To expose blocks without such shelter while curing is fatal, and will result in ultimate disintergration and crumbling.

To avoid expansion cracks, blocks should not be frozen during the first few days of their existence. The curing of blocks in winter is, however, by no means impracticable, although requiring more time, as crystallization is slower and is almost entirely suspended when the temperature is a few degrees below freezing. It is, however, merely a suspension and is resumed upon a rise in temperature.

Climatic conditions must also be considered. A dry atmosphere or intense extremes of heat and cold will require greater care than a humid atmosphere or a comparatively even temperature.

The influence of care or carelessness in curing on uniformity or diversity of color is seldom appreciated. This is a point worthy of careful study and exhaustive experimentation, for the day is at hand when the man who is heedless as to a pleasing and uniform color in his product may not hope to meet the demand for the artistic in concrete block construction.

Strength is the great essential—the final test by which every building material must stand or fall—and in this regard scientific curing is of prime importance. Cement is the bonding element, attaining its ultimate strength only by thorough crystalization, and thorough crystallization is only secured by scientific curing.

I have been asked by men, otherwise intelligent, how long it took blocks to dry out. I have seen blocks, otherwise good, exposed to the intense heat of a summer sun and given little or no attention. Is it that such practice should produce blocks porous, unsightly and weak? Is it fair to the people who desire to avail themselves of the advantages of this construction, and rely upon the knowledge and integrity of the manufacturer? Let us apply scientific methods to our work if we desire permanent and enduring success.

The Architectural Association of London publish a humourous journal called "The Tufton St. Tatler or the Purple Patch" from which the following is an extract.

THE DAY'S WORK.

I got to the office at half-past ten,
And sat on my stool and sighed ;
Poor Jim grew sleek on a pound a week
In this way till he died.

I drew a moulding about a door,
And figured it two by three ;
Then feeling weak, I went to seek
A neighbouring A. B. C.*

When I came back in the afternoon
That moulding looked too small ;
After earnest thought, I felt I ought
To rub out door and all.

Just as I finished, the clock struck five,
And I thought, with a weary sigh,
"It's hard for you to earn your screw
In this way till you die."

*Aerated Bread Company restaurant.

ARCHITECTS' REGISTRATION BILL FOR GREAT BRITAIN.

A bill for the registration of Architects in Great Britain and Ireland has been introduced in the House of Commons.

Those qualified to be registered are— persons who at the date of the passing of the Act are fellows or associates of the Royal Institute of British Architects, members of the Society of Architects, professional members of any architectural society affiliated with the Royal Institute of British Architects; persons proving to the satisfaction of the General Council that they were practising architecture prior to January 1st, 1895, and are still so practising; or who have served as apprentices, assistants or practitioners in architecture for twelve years in the aggregate after attaining the age of fifteen years. An applicant for admission after the passing of the Act must be over twenty-one years of age, must have served as apprentice for not less than three years with a registered practitioner, and must have passed such examinations as the General Council shall authorize. None but registered persons are to be entitled to recover charges or hold public appointments unless they already hold them. Colonial and foreign practitioners with recognized diplomas are to be allowed to register, their names being kept on a separate list.

The Privy Council shall appoint the place of the first meeting. An elaborate set of clauses provides the machinery for election. The charters of the Royal Institute of British Architects are to remain in force, and provision is made for the appointment by the General Council and branch councils of a registrar and other officers. Removal of names from the register may be done at the request of the person whose name is to be removed; where a name has been incorrectly or fraudulently entered; where a person registered has, after the passing of the Act, been convicted of an offence which if committed in England would be a misdemeanour or higher offence; or where a person registered is shown to have been guilty after his registration of any conduct infamous in a professional respect. A name may be restored by resolution of the General Council.

The registration fee varies from £5 to £3, according to the class of qualication for registration at the date of the passing of the Act. The annual fee is 20s.

The governing body is a General Council of Architectural Education and Registration of the United Kingdom. The membership of the Council consists of:—Five members nominated by the Crown (three of them for England and Wales and one each for Scotland and Ireland). Five architects are to be chosen as members by the Royal Institute of British Architects (three for England and Wales and one each for Scotland and Ireland); one by the Royal Academy of Arts; one by the Royal Institute of the Architects of Ireland; two by the Society of Architects; five by members of provincial societies qualified to register (three for England and Wales and one each for Scotland and Ireland); and nine by registered practitioners (five for England and Wales and two each for Scotland and Ireland).

Members of the Council are elected for five years and the president for a period of three years. This is abont the period that the experience of Canadian Associations seems to indicate as necessary for efficient occupation of the presidents' office, and to give it a serious purpose so that only those who have an aptitude for such a position will feel inclined to take it up. A one year holding tends to reduce the responsibility attaching to the office. The permanent officer becomes the real head of the Association and the presidentship, partly from this reason and partly because the frequency of change makes it necessary to go beyond the number of the few really fit for the office, is apt to become a mere compliment passed round among the senior members of the profession.

Other clauses of the bill deal with the penalty for an unregistered person using the title of architect or any title implying that he is registered, the machinery for holding examinations, the registration of branch registers, evidence of qualification, publication of the register and other matters.

PROGRESS IN ARCHITECTURE IN THE UNITED STATES.

By R. Clipston Sturgis, In The Western Architect.

It is often claimed that the United States has no architectural history and that little or nothing can be learned by a study of the architecture of the last two centuries in America. It is perhaps worth while to run over the work of these years and see if this is not a mistaken idea.

The first period of our architectural history was that which saw the development of the simplest type of settler's dwelling. Every house which is an honest expression of circumstances and surroundings is useful as an example. The log cabin, built with the by-product of clearing the land for cultivation, taught our New England ancestors the fine craft of wood-working which still is found in the skillful handling of axe displayed by the guides in the backwoods. It taught also, first hand, the art of dressing and framing timber, which would undoubtedly have had as marked an influence on early architecture here as it had on that of England in the forestry districts, in the fourteenth and fifteenth centuries, but for the fact that, as soon as the country became fairly settled, the classic influence, entirely predominant in the old country, took possession here and modified the frank expression of a timber frame.

The first period of our architecture terminated about the middle of the eighteenth century. Before that the type was an extremely simple building with no pretence at being architectural in the sense of conforming to any of those rules which taken together form a style. The little old house of the Albees at New Castle, N. H., is an excellent example of this. A simple, quiet, lowly house, nestling under the great elms, its beauty lies in its restful character, its modesty and reserve. A very similar character is found in the Fairbanks at Dedham, and in a number of the early Rhode Island houses, like the Manton house at Manton.

But this utter simplicity was running counter to the ever-increasing influence of English civilization and culture, which was rapidly taking the places of the simpler modes of living and methods of thought of the days of the settlers and pioneers. The houses of the govenors of the states and of the merchants and of other prominent men were modeled on the houses which were common among the people of that class in England. The handllng of wood had, however, become so thoroughly ingrained in the American carpenter that the English types were modified by and made to conform to the conditions of wood construction. The clumsy lap-boarding of England which one still sees occasionally, wide boards, overlapped and tarred produced the shaved pine clapboard. Neither tile or slate were available for roofs, and to replace this the split shingle or spruce, pine or cedar was produced by the hardy lumberman. This was the precursor of the modern sawn shingle. The house which was the outcome of this second phase was generally a two-storey building—the early one was practically one-storey and a big roof—with hipped or gambrel roof. The plan was more regular and the exterior showed more study of architectural precedent. It is, however, in the detail of the exterior that the most marked artistic perception was shown. There were no architects other than the well-trained carpenters, much of the published detail was for interior finish, and, if for exterior work, was for execution in stone. Yet the American carpenter executed doors, porches, verandas, cornices and balustrades of excellent lines, in good proportion, and with a detail which was invariably refined, interesting and in scale for the material.

Althongh the majority of this later eighteenth century work was executed in wood, there was among the wealthy a considerable use of the more durable materials. Brick was imported from England and Holland for New England, Virginia and New York magnates, and in Pennsylvania they used the native stone. These houses, although more closely allied than the wooden ones to their counterparts in the mother country, had yet many distinctive marks to differentiate them from English work. Of the wooden two-storey gambrels, the Langdon house at Portsmouth and the Jeffrey Lang house at Salem are good examples, while Westover in Virginia, the Warren house at Portsmouth and the Upsal house at Germantown are familiar instances of the more substantial structures.

This brings one to the war of independence, which made a considerable break in our architectural tendencies and traditions; and yet, not as much as would seem likely ,considering the momentous change in our position as a people Before touching on this, however, let us just glance at another phase of architecture which existed here in the eighteenth century, but which had no influence until later events brought it in contact with us; that is the work based on the late Spanish Renaissance, which strongly rooted in Mexico and the West Indies, had spread into Texas and Southern California. In this case there had been no very marked modification of the continental types. Heavy stone walls, stuccoed surfaces, redundant and somewhat florid ornament, wide surfaces of white, pierced by small window openings, and in some localities, color in domes or roofs of glazed tile, were the marked characteristics of the American buildings as they were of their Spanish prototypes. For the present, however, this exercised no influence over the architecture of the states.

With the opening years of the nineteenth century, when our people were beginning to settle down to new conditions, architecture for a time reflected, though somewhat faintly, the fashions which succeeded each other in England and France. In the end of the eighteenth century the Adam brothers in England had been influential in drawing attention to Greek art, and this tendency reacted on the somewhat coarse detail which was then in fashion.

The style of the Adamses and the style called empire in France were both more of a fashion in detail than of a standard or method of design. It tended, however, to a simplicity of form, at times almost barren, and flatness of moulding and detail which was at times almost colorless. Taken as a whole, however, it was a refined and scholarly expression, and, as such, worthy of study. In this country it masked a somewhat indefinite line between the work of the eighteenth and of the early nineteenth centuries. A simple square brick or wood structure, like the Haven house at Portsmouth, the Pickman house at Salem or the Van Rensellaer manor at Albany; and in another way it left its mark on Virginia. Italian study and the Greek revival had induced certain English architects to reproduce an Italian plan of a central building with wings connected with arcades, a type quite unfit for England and requiring considerable modification before it was even possible; and this plan was echoed in more than one of the Virginian homes, Homewood and Whitehall.

If the love of the Greek had stopped right there, with a fairly sane expression, it would have had its good influence and nothing more. But one cannot stop the swing of the pendulum in such matters and our people must needs carry the thing further and attempt to reproduce Greek forms in structures which bore no relation whatever to their originals. The period of the Greek temple is familiar to all. As an occasional freak, a play of an imaginative mind, it might be very well. One can imagine a diminutive Greek temple, although perhaps really a tool shed, built of wood and painted white,, which standing on the edge of the garden with a background of fine trees, might be most interesting, amusing—even beautiful. But when private houses and public bnildings are all Greek, it is extravagant and out of reason. It is hardly necessary to point out examples of this tendency. Hardly a center in the United States is without one or more

This phase of our nineteenth-century architectural fashions was, however, dignified and beautiful compared with that which followed it, a senseless, unintelligent attempt to revive Gothic. The revival of classic interest had thrown into disrepute Gothic and all the styles which intervened between the Roman empire and the Renaissance. They were classed as more or less barbaric, and their true place in history ignored. The reaction from this led to a study of mediæval days, but until the days of Violet le Duc and Pugin it was neither intelligent nor appreciative. But it served to create a somewhat general interest in the Gothic period. The attempts of reproducing this in stone were hard enough—witness Gore Hall at Harvard—but when it came to weak imitations in wood the result was truly awful. The Greek movement and the Gothic movement came as incidents in the architecural history of the last century, rather than as generally adopted styles, and by the time of the Civil War we had reached an architectural hodge-podge which was little less than chaos. Architects with little or no definite training designed for men without either training or taste.

The growing wealth and inportance which came to the country ten years after the Civil War were displayed in buildings, the chief features of which were extravagance and bad taste. The architects sought after originality at all costs, the owner sought to display his newly earned riches. This tendency is not entirely gone yet. There is now, however, a very strong counter current, for which we may feel truly thankful. Largely this is due to the appreciation by the architects themselves of the importance of their profession and of the impossibility of engaging in it with any creditable success without a thorough education, and thorough practical training. Thirty years ago a few men studied architecture in our technical schools, and a still smaller number, not content with mere foreign travel, availed themselves of the advantages of the Ecole des Beaux Arts in Paris. These men were the leaven. They set a standard, and since then the requirements of the profession have been steadily advancing, and its standards steadily raised.

One result of this systematic study and preparation for the profession of architecture was a much more thorough knowledge of its history; and various phases or periods of past work appealed with force to different men. No one had thought much of the Romanesque of Southern France, except as an interesting development on the lines of the Byzantine, which led up to the twelfth century Gothic and culminated in the thirteenth. But to one man it appealed as a vital style capable of growth and development, and in the hands of Richardson Romanesque lived once more. Even with him it had no complete success. Trinity church is, perhaps, as fine as any of his work, but one doubts whether his smaller works, the Harvard law school, Sever hall, or the North Easton library, will have a permanent value. A style dependent on one man must be deficient, and no one after Richardson seems to have been able to make Romanesque interesting or even endurable.

Looking back over the work of the past twenty years, one may feel some confidence for the future, for however many the mistakes, there is a growing body of men who no longer make the mistake of ignorance or bad training. There is a growing number of architects who are well equipped for their work. We have not, and perhaps never will develop, any national style, but we use the established precedents with judgment and a fair amount of inmaginative feeling, and we need not feel ashamed of the results when compared with contemporary work of the older countries. One fancies that it is, on the whole, a good sign that we are not purists as to style, and if one says

that such a building is French Renaissance, one generally means simply that the inspiration came thence; but one can point to a considerable amount of work which is based on various periods, and which are the results of a scholary knowledge of the time, coupled with an entirely modern appreciation of modern conditions and civilization.

The later French Renaissance has plenty of admirers in New York, and it is handled, as are their other styles, with knowledge and courage. Whatever we may think of the taste of some of the recent examples of domestic architecture there, no one can deny that they are the work of men who know. To a certain extent Spanish Renaissance has also had its influence in developing this tendency, and it may well have more as we find ourselves obliged to build for our new possessions. Perhaps there may be in Porto Rico and Cuba and Hawaii and the Philippines openings for men to work on the extremely interesting lines of the Spanish colonial work. And finally, to complete what seems in the rehearsing to be rather a medley, there are a few men here and there who are working on lines distinctly individual, and yet not for a moment to be classed with those who did individual work in the sixties and seventies, for their work is unquestionably that of the trained architect.

THE R. I. B. A. RULES FOR ARCHITECTURAL COMPETITIONS.

The following regulations were approved by the Royal Institute of British Architects, on June 5:

If the promoters of an intended competition desire members of the Royal Institute of British Architects to take part therein, the conditions should be based on the following suggestions: 1. The promoters of an intended competition should, as their first step, appoint one or more professional assessors, architects of established reputation, whose appointment should be published in the original advertisements and instructions. The selection of an assessor should be made with the greatest possible care, as the successful result of the competition will depend very largely upon his experience and ability. The President of the Royal Institute of British Architects is always prepared to act as honorary advisor to promoters in their appointment of assessors. All the designs sent in should be submitted to the assessors.

2. The duty of assessors should be, after conference with the promoters: (*a*) To draw up the particulars, conditions and suggestions in accordance with these regulations, as instruction to competitors, such documents to be so drawn up as to form an agreement between the promoters and the competitors, and also to advise the promoters upon the question of cost and the amount and apportionment of the premium or premiums. (*b*) To determine whether the designs conform to the instructions, and to exclude any which do not. (*c*) To advise the promoters on the relative merits of the designs admitted to the competition, and to make a selection in accordance with the instructions. *Note.*—It is essential in drawing up the instructions to state definitely which of the conditions must be strictly adhered to, and which are merely optional, or of a suggestive character.

3. No promoter of a competition, and no assessor engaged upon it, nor any employe of either, should compete, or act as architect, for the proposed work.

4. The number scale and method of finishing of the required drawings should be distinctly set forth, and they should not be more in number, or to a larger scale, than necessary to clearly explain the design, and such drawings should be uniform in size, number, mode of coloring and mounting. If the assessor advises perspective drawings it should be so stated.

5. Competitions should be conducted in one of the following ways: (*a*) By advertisement, inviting architects willing to compete for the intended work to send in designs. The promoters, with the advice of the assessor or assessors, should make their selection from such designs. The author of the design awarded the first place should be employed to carry out the work. (*b*) By advertisement, inviting architects willing to compete for the intended work to send in their names by a given day; with such other information as the candidate may think likely to advance his claim to be admitted to the competition. From these names the promoters, with the advice of the assessor or assessors, should select a limited number to compete, and each competitor thus selected should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work. (*c*) By personal invitation to a limited number of selected architects to join in a competition for the intended work. Each competitor should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work.

6. No design should bear any motto, device, or distinguishing mark; but all designs should be numbered by the promoters in order of receipt. Any attempt to influence the decision of the promoters, or of the assessor or assessors, should disqualify a competitor.

7. The author of the design placed first by the assessor or assessors should be employed to carry out the work, and he should be paid in accordance with the schedule of charges sanctioned and published by the Royal Institute. If no instructions are given to him to proceed within twelve months from the date of selection, or if the proposed works are abandoned by the promoters, then the selected architect should receive payment for his services in connection with the preparation of the competition drawings of a sum equal to 1¼ per cent. of the amount of the estimated expenditure.

8. In every case the amount of premium or remuneration for the competitive designs should be fixed under the advice of the assessor or assessors.

9. Where a deposit is required for supplying the instructions, it should be returned on the receipt of a *bona-fide* design; or if the applicant declines to compete and returns the said instructions, within a month after the receipt of replies to competitor's questions. The deposit required should not exceed the sum of one guinea.

10. Each design should be accompanied by a declaration, signed by the competitor, stating that the design is his own personal work, and that the drawings have been prepared under his own supervision.

11. A design should be excluded from a competition (*a*) if sent in after the period named (accident in transit excepted); (*b*) if it does not substantially give the accomodation asked for; (*c*) if it exceeds the limits of site as shown on the plan issued by the promoters, the figured dimensions on which should be adhered to; (*d*) if the assessor or assessors should determine that its probable cost will exceed by 10 per cent. the outlay stated in the instructions, or the estimate of the competitor, should no outlay be stated. If the assessor or assessors be of opinion that the outlay stated in the instruction is inadequate, he or they shall not be bound in the selection of a design by the amount named in such instructions, but the question of cost shall nevertheless be a material element in the consideration of the award; (*e*) if any of the other instructions are violated.

12. It is desirable that all designs and reports submitted in a competition, except any excluded under Clause 11, should, with the consent of their authors, be publicly exhibited after the award has been made, which award should be published at the time of exhibition. At the close of the exhibition all the designs, with the exception of the one placed first, should be returned, carriage paid, to their authors.

13. It is essential to the success of any competition that the promoters should agree in their instructions that the award of the assessor should be adhered to, unless there is some valid objection to the employment of the author of the design placed first, as to which the assessor should be satisfied.

14. In the case of works of considerable magnitnde, it is desirable that three assessors should be appointed. As stated above, the President of the Institute is always ready to advise on this or other points.

MONTREAL NOTES.

The advancing season brings to view a pretty heavy crop of dwelling houses in and around Montreal. Naturally the greater part of them are built as speculations either to let or to sell. Taking these as a whole they cannot be said to reflect much credit on the judgement of the producers nor on the appetite of the consumers. That souls should be found so thirsty as to be glad to

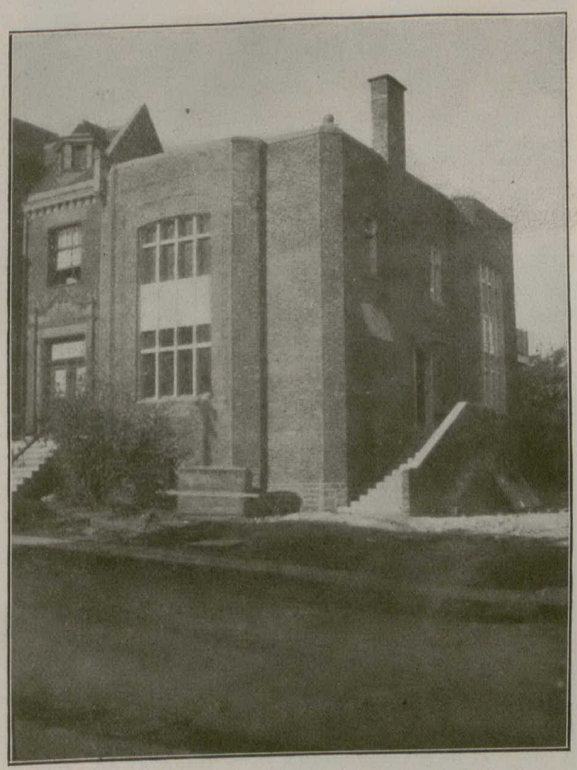


FIG. 1—HOUSE IN ARLINGTON AVENUE, WESTMOUNT.

lap up the outpourings of galvanized iron that bespatter so many of these ruinous erections would seem to bespeak them hydroptic with some terrible disease. Probably no material ever used in building has lent itself with such fatal facility to the degradation of the art. The multiplication of foolish shapes which this material is made to assume in the pitiful notion that they tend to beauty seems to know no end. No form so harsh and ugly, no feature so vain and meaningless, but it is set up upon the housetops as tribute to beauty. Oh Ornament what sins are being committed in thy name! Some of these houses with a perfect cobweb of external stair hanging about their faces and a bristle of galvanized puerilities along the top offer about as painful a spectacle as anything ever built.

One cause which has played an important part in calling into being this galvanized caricature of architecture is, undoubtedly, the introduction of the flat gravel roof. This form of roof, easy to construct and found convenient in so many ways—for it retains comparatively little snow, being wind-swept, and it forms no icicles around the eaves, being drained to the centre or the back—has the disadvantage of failing in picturesque effect. The pitched roof, even when of low pitch, always suggests the solidity of a building, and, more especially when flanked by gables carrying chimneys, gives variety and picturesqueness to the sky-line. It is really the very hankering after this variety and boldness of effect that induces these outbreaks in galvanized iron. The monotony of the flat roof-line is too grievous to be borne. With this feeling one cannot help but have a great deal of sympathy, however much one must deplore the insobriety to which it leads.

Another circumstance tending to poverty of appearance in the cheaper classes of houses is the method of building in three-inch plank, sheeting with building felt and then veneering the outer face with brick or stone—a method, probably almost peculiar to the French-Canadian, and which produces a house about equal to frame house for endurance and weather resisting quality, with probably a slight advantage in regard to fire resistance. The impossibility of employing stone or brick cornices or other projections of any weight with such a construction is apt to lead to a deadly flatness and monotony appearance. Hence again the very human desire to obtain variety, at any cost, and the use of galvanized cornices and other rubbish, which weighing light is at least a physical possibility. It is true that wood is a kindlier and pleasanter material which might serve the purpose, but the alleged longer endurance of the iron is given as a reason for the preference which it is receiving more and more.

Coming to the internal disposition of these houses—a reprehensible practice becoming much too common is the 'dark-room' or room without a window. The most common form of this is the room at the back of a larger apartment and communicating with it by an 'arch' or six feet wide opening on which a curtain may or may not be hung. One advantage of this arrangement is that the two rooms may be spoken of as merely one large well ventilated room, when dealing with authorities who are likely to find fault with such a disposition, but they immediately become two rooms

FIG. 2—HOUSE ON THE COTE ST. ANTOINE ROAD, WESTMOUNT.

when terms of lease are being discussed with an intending tenant. In a number of quite recent houses, renting at from $15 to $20 per month, rooms are often introduced without either window or communicating archway. Where such dispositions are permitted, sanitary authorities will effect little in the way of limiting the spread of consumption by regulations as

to spitting on the sidewalks, good though such rules may be. The dark w. c. is also a great deal too common. Even with a certain apology for ventilation, a dark room will never be a clean or a sanitary one. Climatic conditions may be pleaded as the cause of the failure in external appearance of these houses, but they have no share in the internal deficiencies.

Of houses of the small villa class Montreal has a remarkably small proportion, but in Westmount and other suburbs a number are to be found. In these the pinch of poverty is naturally not so much in evidence. The evils spoken of above are here also somewhat too prevalent. The illustrations show a few of the pleasanter examples. The house in Arlington Terrace, (Fig. 1), shows a heroic endeavor to deal quite frankly with the problem of the flat roof. In this one and in that in the Cote St. Antoine Road, (Fig. 2), a "common" brick with good variety of colouring has

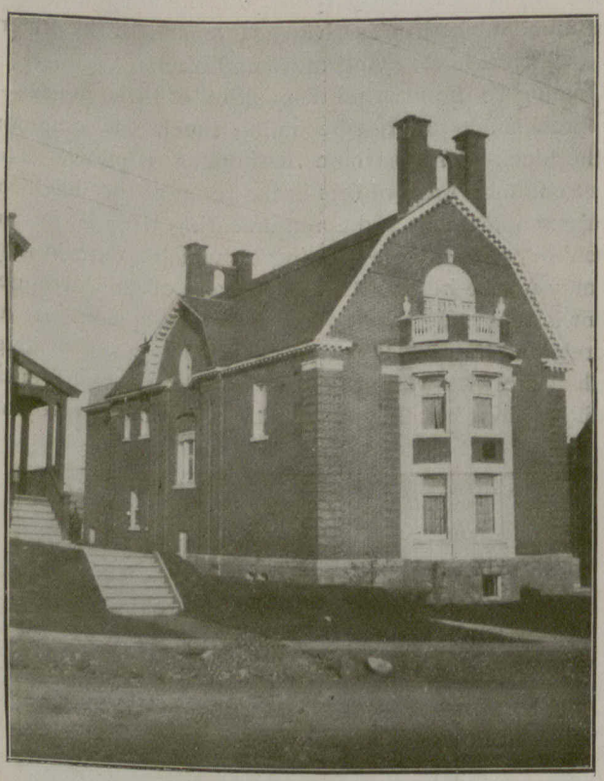


FIG. 3—HOUSE AT OUTREMONT.

been used, in pleasant relief from the miles of the hard and terribly good Laprairie pressed brick which hold such a monoply in the district. The house at Outremont, (Fig. 3) is roughcast of yellow color. The woodwork, solid and heavy of scantling, is almost black in tint and the situation on the mountain side is charming. The house at Roslyn Avenue Westmount, (Fig. 4) may be taken as a fair example of the Georgian or Colonial style of villa, more commonly affected in the New England States where this tradition belongs. One can contemplate any of these houses with a feeling

FIG. 4—HOUSE IN ROSYLN AVENUE, WESTMOUNT.

of thankfulness at finding some dwellings where the disease of galvanized iron ornamentation has not settled.

CONCORDIA SALUS.

The Builders' Exchange of Cleveland took their annual summer outing this year to the Muskoka Lakes. Two hundred members of the Exchange took part in the trip and, as they take their ladies with them, the excursion was a cheerful one. On the first evening when they left Cleveland they entertained themselves on the steamer by singing popular songs with the help of song books which were provided, and by listening to humorous stories from an entertainer whom they took with them as a guest of the Exchange. They made the Royal Muskoka Hotel on the following evening, lunching on the way with the Builders' Exchange at Toronto, and then had an evening of music and dancing, followed by a day of excursions to opposite ends of the Lakes and another musical evening before they returned home so as to arrive early on Saturday morning in time to close up the business of the week.

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PERSONAL.

Mr. A. E. Nicholson, of St. Catharines, recently a student of architecture with Messrs Gordon & Helliwell, of Toronto, has opened an office for himself in St. Catharines. Mr. Nicholson had already a building business ready to his hand when he came to Toronto, and, after communication with the Council of the Ontario Association of Architects, decided to article himself as a regular apprentice and prepare for all the examinations of the Association. Having passed all the examinations of the Association Mr. Nicholson is now a registered architect by examination, and, as a person who has fulfilled the ideal of the Ontario Architects Act in taking advantage of its course of training, we hope he will have a distinguished success.

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